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Maine Agricultural Experiment Station

ORONO

BULLETIN No. 200. JUNE 1912.

THE FUNGUS GNATS OF NORTH AMERICA.

Part IV (Conclusion).

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BULLETIN No. 200.

THE MYCETOPHILIDAE OF NORTH AMERICA.

Part IV (Conclusion)*.

O. A. Johannsen.

The species of the genera belonging to Series I as well as the first 6 genera of Series II of the subfamily *Mycetophilinae* were described in Part III. In this paper the species of the remaining genera are characterized, as well as those of the subfamily *Sciarinae*. The members of the former so far as known injure mushrooms only; the latter constitute the most important group so far as the agriculturist is concerned.

Though occasionally reported as injuring mushrooms the members of the *Sciarinae* are not as a rule regarded as serious pests of the fleshy fungi, differing in this respect from the species of the other subfamilies. After partial decay of fungous growths, however, larvæ of *Sciara* are found in abundance, and it is this fact, which in some cases at least, has led observers and growers to attribute the destruction to these gnats when in all probability the injury was caused by species of *Mycetophila, Exechia* or *Phorids.*

On the other hand there is no lack of evidence of the harmful character of some species of *Sciarinae* to seed corn, to potatoes, to wheat, and to the roots of other plants. Professor Forbes in his 7th report refers to the injury which the larvæ do to seed corn, and in his 15th (pp. 95-98) notes the destruction of cucumber plants by these pests. In an earlier report he mentions the occurrence of larvæ infesting the roots of grass.

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* Papers from the Maine Agricultural Experiment Station, Entomology No. 52. Parts I, II and III were published in Bulletins 172, 180 and 196 respectively.

Florists look upon these little gnats with a suspicion which is more than justified, as the fact that the larvæ feed upon the tender roots of potted plants is well established. *Sciara tritici* is identified with an injury to the roots and stems of wheat, and it is probable that the damage caused by it or by some other member of this genus is far more widespread than is generally known owing to the insidiousness of its attack.

In Bulletin 27, n. s. (U. S. Dept. Agr. Div. of Entomology) Mr. Chittenden cites several instances of damage occasioned by *S. inconstans* to peas growing in flower pots, and to lettuce, cucumbers, and carnations. The injury caued by *S. mali* is according to Fitch's own account, secondary in its nature, the larvæ feeding on apples already affected by the Codling moth. It may be moreover only an accidental occurrence, as there is no record in entomological literature, as far as I know, of a similar attack. Benj. Walsh's Grape Midge (First Ann. Rept. Ill. 21, 1867) belongs in the same category, it being a guest of more injurious species.

Walsh and others have long ago suggested the possibility that the larvæ of some species of *Sciara* are associated in some way with a sort of potato scab. The fact that the larvæ of these gnats are so abundant in barnyard manure and that scab is most prevalent on potatoes from fields which have been well fertilized has suggested the possibility of this relationship. Most significant in this connection is the account given by Dr. A. D. Hopkins of *Pnyxia (Epidapus) scabiei*. Concerning this species he says: "I have observed the larvæ of a *Sciara* and an *Epidapus* feeding on the living, healthy tissue of potato tubers, and have obtained conclusive evidence that they are capable of causing, and actually do cause, conditions which in one stage would be recognized as potato-scab and in a more advanced stage would be recognized as a form of potato-rot."

From the context of Mr. Hopkin's article it is not necessarily inferred that he associates that form of potato scab caused by *Oospora scabiei* with the injury (or infection) produced by the insect.

My own observations of the larvæ of *Sciara* confirm the statements made by some of the earlier writers. I have found larvæ in potatoes feeding on the sound tissue, on the roots of various grasses and in tulip bulbs. In some preliminary experiments I failed to induce larvæ to attack a tuber with unbroken

skin, but more extensive trials may give different results. The cut surfaces of seed potatoes are readily attacked and the seed at times seriously damaged especially where the soil has been fertilized by barnyard manure.

Other data along these lines are on hand and more experiments are contemplated, the results of which are to be published at a later date. Besides the acknowledgments already made in Part I, I wish to add that through the kindness of Mr. Fredr. Knab I have had the privilege of again examining the types in the U. S. National Museum. To Dr. E. P. Felt I desire to express by obligations for the loan of type material of Felt's and Lintner's species.

THE MYCETOPHILINAE (Concluded.)

24. Genus *Phronia Winnertz.*

Verh. Zool.-bot. Ges. Wien. XIII. 857, 1863.

Lateral ocelli contiguous to the eye margin, the middle one small, placed in a groove near the base of the frontal triangle; antennæ in the male frequently, in the female, usually cylindrical. Legs slender, tibial setæ delicate, fore tarsi of female sometimes incrassate. Costa produced, sometimes but very slightly, beyond tip of Rs; subcosta short, rarely half as long as the basal cell R, usually ending free, media forks distad of the base of Rs, rarely directly under it, cubitus forks distad of the fork of the media, its branches usually widely divergent; anal vein incomplete.

The forking of the media distad of the base Rs and the slightly produced costa will distinguish this genus from *Exechia.*

Table of Species.

a. Costa produced about 1-3 of distance from Rs to M_1; Mass. 1. *producta* n. sp.

aa. Costa produced less than 1-5 of distance from Rs to M_1.

b. Fore tarsal joints 2-4 not distinctly swollen beneath.

c. Hind coxæ, and usually middle coxæ also, fuscous, hypopygium black (Fig. 25). 2. *insulsa* n. sp.

cc. All coxæ yellowish.

d. Western or middle western species.

e. Males; hypopygium with globose terminal appendages.
f. Brown species (Fig. 26). 3. *venusta* n. sp.
ff. Thorax yellow with brown vittæ. 7. *incerta.*
ee. Females.
f. Third antennal joints nearly three times as long as broad; abdomen uniformly fuscous.
3. *venusta,* var. a.
ff. Third antennal joint less than twice as long as broad, or otherwise distinct.
g. Pleura fuscous, S. D. 3. *venusta.*
gg. Pleura largely yellow; hind margin of abdominal tergites, yellow; Wyo. and B. C. 7. *incerta?*
dd. Eastern species; males.
e. Terminal lobes of hypopygium longer than basal segment. 4. *difficilis* n sp.
ee. Terminal lobes of hypopygium shorter than basal segment.
f. Hind femora tipped with brown; base of abdomen largely yellow; hypopygium with short broad forceps (Fig. 28). 5 *similis* n. sp.
ff. Hind femora without conspicuous brown apices; hypopygium with more elongate forceps (Fig. 29).
6. *rustica* var. a.
bb. Fore tarsal joints, 2-4, distinctly swollen beneath and broader than the metatarsus, apex of the latter enlarged; females.
c. Western species; base of abdomen fuscous; Stanford Univ., Cal. *Phronia* sp.
cc. Eastern species.
d. Hind coxæ yellow. 4, 5. *difficilis, similis.*
dd. Hind coxæ fuscous. 2. *insulsa* n. sp.

1. *Phronia producta* n. sp.

Male. Length 2 mm. Head with antennæ fuscous, the face, palpi and scape reddish yellow; intermediate antennal joints about 1.5 times as long as wide. Thorax reddish yellow with three subconfluent brown stripes; hairs pale, setæ black; 4 scutellar setæ. Abdomen yellow anteriorly with dorsal stripe and posterior segments blackish; hypopygium (Fig. 24) dark. Coxæ and legs yellow, tips of hind femora and of tibiæ blackish; tibial spurs and tarsi brown; fore metatarsus about 7-8 as long as tibia. Wings (Fig. 152) hyaline, tinged with yellow; halteres yellow. Brookline, Mass. (C.W.J.). Aug.

2. *Phronia insulsa* n. sp.

Male. Length 2 mm. Head and antennæ fuscous, palpi and scape yellow. Thorax brown, the humeri and pleura yellowish brown; hairs yellow; setæ brown to black, those of the scutel-

lum 4 in number. Abdomen brown, apical segments, and hypopygium (Fig. 25) blackish. Legs and fore coxæ yellow, the middle and hind coxæ, tips of middle and hind femora and of tibiæ, dark brown; tibial spurs and tarsi brown. Wing (Fig. 153) hyaline, with a brownish tinge; halteres yellow.

Female. Similar to the male in coloring. Fore metatarsus and tibia subequal; fore tarsal joints, 2-4 swollen beneath, tip of the 1st enlarged. R. I. and Ithaca, N. Y. March and Aug.

Var. a. Female. Similar to the foregoing but only the 4th and tip of the third joint of fore tarsus distinctly swollen. Ithaca, N. Y.

3. *Phronia venusta* n. sp.

Male and female. Length 2.5 mm. Head and antennæ brown; palpi and scape dusky yellow; intermediate antennal joints about twice as long as wide. Thorax brown, including hairs and setæ; scutellum with 6 or more marginal setæ. Abdomen brown, hairs pale; hypopygium (Fig. 26) yellow with blackish claspers. Coxæ and legs yellow, tips of middle and hind femora and tibiæ slightly brownish, tibial spurs and tarsi brown; fore metatarsus about 1-16 shorter than the tibia. Wings (Fig. 154) yellowish hyaline; halteres yellow. Male, Vollmer, Ida! (J.M.A.) Sept.; female, Brookings, S. D.

Var. a. Female. Similar to foregoing but thorax more yellowish with 3 subconfluent brown stripes. Antennæ more elongate, third joint nearly 3 times as long as wide. Moscow Ida. (J.M.A.).

4. *Phronia difficilis* n. sp.

Male. Length 2.5 mm. Head brownish; face, palpi and 3 to 4 basal joints of antennæ yellow, remainder of antennæ brown; intermediate segments about 1.5 times as long as wide. Thorax yellow, the center of the mesonotum, scutellum and metanotum from pale to dark brown; hairs yellow, setæ brown; 4 marginal setæ on scutellum. Abdomen yellow, the dorsum of each sclerite with a brown triangle the base upon the posterior margin, the fifth and sixth segments wholly blackish, hypopygium (Fig. 27) yellow, its hairs darker especially at the apex. Coxæ and legs yellow, the tips of the hind femora and of hind tibiæ, and all the tibial spurs and tarsi, brown; fore metatarsus and tibia subequal in length. Wings (Fig. 155) yellowish hyaline; halteres yellow. Ithaca, N. Y. 2 specimens.

Female. Similar to the male in coloring but the abdomen is largely brown, the anterior margin of each sclerite and the anterior portion of the venter yellow. The tip of the metatarsus and joints 2-4 of the fore tarsi swollen beneath. Ithaca, N. Y

5. *Phronia similis* n. sp.

Male. Length 2.5 mm. Coloring as in the preceding species (*P. difficilis*) excepting that the pleura are brown, light brown in one specimen, darker in another, and that the dark triangles of the abdomen are larger. Hypopygium (Fig. 28) black, the appendages shorter than the basal sclerite. Wing, Fig. 156. Ithaca, N. Y. Sept. 2 specimens. The hypopygium resembles that of *P. Taczanowskyi* Dzd.

It is barely possible that the females described under P. *difficilis* belong here.

6. *Phronia rustica* Winnertz.

Verh. Zool.-bot. Ges. Wien. XIII. 875. 1863.

Male and female. Length 3-3.3 mm. Head brown, 3 or 4 basal joints of antennæ, and palpi yellow; antennæ of male about 1.5 times, of female about as long as head and thorax united. Thorax brown, with ashy reflection, in teneral specimens the pleura are yellow; setæ brownish. Abdomen brown with appressed pale hairs; hypopygium large, yellow, sometimes darker apically. Coxæ and legs yellow, tarsi brown; fore metatarsus at least as long as the tibia. Wing brownish hyaline; halteres yellow. "Greenland."

Var. a. Differs in structure of the hypopygium (Fig. 29) Ithaca, N. Y. Aug.

7. *Phronia incerta* Adams.

Wash. Carnegie Inst. 67. 37. 1907. (Mycetophila).

Male. Length 4 mm. Head dark brown, mouth parts and basal joints of antennæ yellow. Thorax obscure yellow; mesonotum with 2 V-shaped figures, one set within the other, resulting in fusion of the two lateral stripes posteriorly and with the median one between them being divided anteriorly. Scutellum and metanotum brown, former with an apical pair of bristles, mesonotum with short yellow pile laterally and

black bristles. Abdomen obscure yellow, base of each segment dark brown dorsally, on the posterior segment the color comes to encircle the segment; the short pile is black. Legs light yellow, tarsi becoming tinged with brown; beside the long apical bristles the middle and hind tibiæ have each a row of shorter bristles; anterior tarsi twice as long as their tibiæ, middle tarsi 1.5 times as long and hind tarsi as long as their respective tibiæ. Wings hyaline; Rs and anterior branch of media divergent, furcation of media beyond base of Rs. Halteres light yellow. "Mayfield Cave, Ind."

An examination of the type specimen, which was sent to me by Dr. Adams, proves it to be a true *Phronia*. The costa is but slightly produced beyond the tip of Rs. The hypopygium which is pale yellow, resembles that of *P. venusta* in the form of the terminal lobes but differs in having upon the inner side of each lobe near the tip a patch of short stout setæ projecting dorsad.

Female. A specimen from Selkirk Mts. B. C. and one from Wyoming may belong here. They differ in not having the lateral stripes of the mesonotum fused posteriorly.

25. Genus *Telmaphilus* Becker.

Mitt. Zool. Mus. Berl. IV. 67. 1908.

With the characters of *Phronia,* differing only in having an elongate attenuated subcosta which ends free beyond the middle of the basal cell R and in having one or two dusky clouds upon the wing. Besides the two species assigned to this genus by Mr. Becker it is probable that the European species *Phronia forcipula* (var. *humeralis*) *basalis* and *nitidiventris* also belong here.

Table of species.

a. Apical wing cloud wide, arising proximad of apex of R_1; Rs strongly bowed. Cal. 1. *tenebrosa.*

aa. Apical wing cloud narrow, arising at apex of R_1; Rs not strongly bowed (Fig. 158). N. H., N. Y. 2. *nebulosa* n. sp.

1. *Telmaphilus tenebrosa* Coquillett.

Proc. Ent. Soc. Wash. VI. 170. 1904 (*Phronia*).

Female. Length 2.5 mm. Black, the halteres and legs yellow, the last 2 pairs of coxæ, the hind edge of the front ones, a streak on under side of each femur near the base, the apices

of the hind femora, and the tarsi except their bases, brown. Third joint of antennæ nearly twice as long as wide, the following joints becoming successively shorter to the fourteenth which is as wide as long; first joint slightly longer than wide, the second as wide as long. Body grayish pruinose, the hairs and bristles yellowish. Wings hyaline, the apex from a short distance before the apex of R_1 to tip of Cu_2 and a cloud below the latter, dark gray; Sc attenuated toward its apex, becoming obsolete slightly beyond middle of basal cell R. R_5 strongly bowed toward R_4; media forks at 1-3 of distance from the crossvein to the forking of the cubitus. "San Mateo Co., Cal."

2. *Telmaphilus nebulosa* n. sp.

Male and female. Length 2.5. Similar to the foregoing but differing as follows: Underside of each femur without dark streak; apical wing cloud begins at the apex of R_1; R_5 not strongly bowed toward R_4 (Fig. 158); fore metatarsus and tibia subequal; hypopygium (Fig. 30) black. Hampton, N. H. (S. A. Shaw), April; Ithaca, N. Y.! April.

25. Genus *Exechia* Winnertz.

Verh. Zool.-bot. Ges. Wien. XIII. 879. 1863.

Lateral ocelli closely contiguous to the eye margin; middle ocellus, when present, placed in a groove on the front (Fig. 67 in Part I). Legs long and slender, fore metatarsus subequal or slightly longer than the tibia, rarely much shorter; tibial setæ delicate (Fig. 62, Part I); posterior basal seta of hind coxæ present. Subcostal vein very short, incomplete or ending in R_1; costal vein does not extend beyond the tip of the radial sector; media fork proximad of the basal section of the radial sector, or rarely directly under it; cubitus forks distad of the fork of the media; its branches widely divergent.

The larvæ, which are frequently found in fungi, do not have transverse rows of ambulacral setulæ.

Owing to the great similarity of the members of this genus and the frequent though slight variation of the wing venation and coloration in individuals of the same species as demonstrated in breeding experiments, I am only able to give a table to the males based largely upon the form of the hypopygia. For brevity the first segment of R_1 measured from the humeral crossvein is designated as a, the second segment, b.

Table of species.

Males.

a. Curvature of Rs conspicuous, the ratio of the maximum normal of the chord to the chord itself 4.5% or more, and the ratio of a to b, .65 or less.

b. Fore metatarsus 1.15 or more longer than the tibia.

c. Curvature of Rs moderate (4.5%), fork of cubitus noticeably distad of base of Rs (Fig. 159); hypopygium with two of the 3 pairs of appendages each tipped with a black spine.

1. *perspicua* n. sp.

cc. Curvature of Rs 7.5% or over; fork of cubitus but slightly distad of base of Rs.

d. Hind margins of abdominal segments yellow; hypopygium (Fig. 32). 2. *umbratica.*

dd. Yellow marking of abdominal segments, when present, confined to the anterior margin; hypopygium (Fig. 33).

3. *nugax* n. sp.

bb. Fore metatarsus shorter than the tibia; hypopygium (Fig. 34).

4. *nexa* n. sp.

aa. Curvature of Rs not conspicuous, ratio of maximum normal of the chord to the chord 4% or less, and the ratio of a to b, .70 or more.

b. *Hind* margins of abdominal segments yellow and the two larger pairs of appendages of hypopygium broad, lobular.

c. Fore metatarsus over 1.25 tibia in length; curvature of Rs moderate (Fig. 163); hypopygium (Fig. 35).

5. *abrupta* n. sp.

cc. Fore metatarsus less than 1.12 tibia in length, curvature of Rs slight (Fig. 164); hypopygium (Fig. 36).

6. *canalicula* n. sp.

bb. Abdomen unicolored, black or yellow or hind margins of abdominal segments dark, or hypopygium of different structure.

c. Yellow species, darker markings on thorax and abdomen pale brown.

d. Each branch of longer forceps with curved branch on inner side (Fig. 39). 9. *satiata* n. sp.

dd. Ventral sclerite of hypopygium, large, quadrangular (Fig. 38a). 8. *quadrata* n. sp.

cc. Thoracic and abdominal markings dark brown.

d. Fore metatarsus about 1-8 longer than the tibia; each limb of the longer forceps either with distinct branch near apex or wide lobe at base.

e. Thorax and abdomen with considerable yellow.

f. Smaller species, 3 mm in length; each limb of longer forceps with curved branch on inner side; (Fig 39). 9. *satiata* n. sp.

ff. Larger species, over 4 mm in length.

g. Limbs of both forceps forked (Fig. 41).

10. *nugatoria* n. sp.

gg. Longer forceps not forked at apex.
h. Hypopygium as shown in figure. (Fig. 42).
11. *nativa* n. sp.
hh. Hypopygium as shown in figure. (Fig. 43).
12. *interrupta.*
ee. Thorax, and abdomen largely, dark.
f. Apex of limbs of one pair of forceps palmate with setæ, the other pair lobular (Fig. 44).
13. *palmata* n. sp.
ff. Longer forceps with attenuated apices (Fig. 45).
14. *fungorum.*
dd. Fore metatarsus not more than 1.1 longer and sometimes shorter than tibia; hypopygium various.
e. Lateral sclerite of hypopygium with bent or curved setæ, appendages short (Fig. 37). 7. *cincinnata* n. sp.
ee. Without bent setæ.
f. Limbs of one pair of forceps at least, over 1-3 as broad as long.
g. Both pairs of forceps with oval limbs; (Fig. 46); fore metatarsus about .9 as long as the tibia; cubitus forks very slightly distad of the base of Rs. 15. *assidua* n. sp.
gg. One of the forceps with tapering apices; cubitus forks noticeably distad of the base of Rs.
h. Thorax yellow with brown dorsum; one pair of forceps oval but apex tapering (Fig. 47).
16. *auxiliaria* n. sp.
hh. Thorax dark; broader forceps with spatulate limbs each with 2 stout mesad projecting setæ (Fig. 48). 17. *bellula* n. sp.
ff. Both forceps rather slender, at least apically.
g. Postero-ventral angles of hypopygial sclerite with 1 to 3 strong setæ, or a blunt process.
h. A single blunt spine or process on each posterior ventral angle.
i. A single long blunt spine on each postero-ventral angle (Fig. 49s); thorax and abdomen with yellow markings. 18. *bella* n. sp.
ii. Postero-ventral angle produced into a slender blunt process; thorax and abdomen dark.
27. *analis.*
hh. One or more setæ on the angles.
i. Postero-lateral margins of hypopygial segment ciliate (Fig. 50); pleura in part yellow.
19. *captiva* n. sp.
ii. Margin not distinctly ciliate; pleura brown.
j. Postero-ventral angle each with a single seta; the broader forceps without tuft of setæ on the preapical angle; (Fig. 51b).
20. *absoluta* n. sp.

jj. Postero-ventral angles each with several setæ; the broader forceps with blunt apex and a tuft of setæ on the preapical angle (Fig. 52). 21. *capillata* n. sp.

gg. Postero-ventral angles of hypopygial sclerite without several conspicuously strong setæ or spines.

h. One pair of the hypopygial appendages curved on apical third and conspicuously longer than the others. (Fig. 53); dark brown species. 22. *obediens* n. sp.

hh. Two pairs of appendages subequal in length.

i. Appendages unusually slender; one pair blunt, each limb of the other pair with a long subbasal branch (Fig. 54b); thorax brown; abdomen with yellow. 23. *attrita* n. sp.

ii. Appendages otherwise.

j. The more slender forceps with several apical setæ (Fig. 55); pleura in part yellow. 24. *repanda* n. sp.

jj. Slender forceps without apical setæ.

k. Abdomen with yellow markings at base of venter; hypopygium (Fig. 56). 25. *absurda* n. sp.

kk. Abdomen brown; hypopygium (Fig. 57). 26. *casta* n. sp.

E. *analis* Coq. belongs to Mycothera.

General description of Species of Exechia.

The species described below, unless specifically stated to the contrary, possess the following characters in common:

Head and antennæ fuscous, the scape and base of the first flagellar joint and the palpi yellow. Dorsum of the thorax fuscous apparently consisting of 3 confluent stripes, leaving the humeri yellow; scutellum and metanotum fuscous; hairs pale, setæ blackish; scutellum with 2 black setæ. Dorsum of abdomen fuscous, hypopygium yellow. Coxæ and legs yellow, the tibiæ dusky yellow, spurs and tarsi infuscated. Subcosta short, ends free; venation as figured. Halteres yellow.

Although the ovipositor of the female offers good specific characters, descriptions are only given of those females which are definitely associated with males.

1. *Exechia perspicua* n. sp.

Male. Length 3.25 mm. Pleura brown. Abdomen brown, the posterior segments darker brown; appendages of the hypopygium (Fig. 31) slender; terminal ventral sternites, paired, rectangular. Fore metatarsus over 1.15 the tibia in length. Wing dusky hyaline (Fig. 159). Sage Creek, Wyo., (W.M.W.) Sept.; Orono, Me.! Oct.

2. *Exechia umbratica* Aldrich.

Annual Rept. Dept. Geol. Ind. XXI. 186. 1896. (Mycetophila.)

Female. Length 5.2 mm; wing 4.5 mm. . . . . Thorax clay yellow, somewhat pruinose with white, dorsum somewhat infuscated and provided with numerous stout black hairs along the sides; scutellum and metanotum also brownish. Abdomen brown, compressed, the distal part of each segment with a lighter ring, which is broader underneath. . . . . In the front leg the entire tarsus is about 4 times the length of the tibia, in the middle leg 2.5 and in the hind leg 1.5 times. Wing tinged with yellow along the costa and to a less degree all over the apical half. "Shilo Cave, Ind. July."

Male and female. Like the female as described above, but dorsum with 3 subconfluent brownish stripes. Foremetatarsus nearly 1.5 the tibia in length. The longer appendages of the hypopygium broad, with a preapical angle (Fig. 32). Wing (Fig. 160). Ithaca, N. Y.

3. *Exechia nugax* n. sp.

Male. Length 5 mm. Pleura light brown, mesonotum a little darker, thoracic setæ dark brown, humeri yellow. Abdomen brown, on each side of segments 2 and 3 each with narrow yellow triangle whose base rests upon the posterior margin of the segment; hypopygium yellow (Fig. 33). Wings hyaline, tinged with brown in the costal cell and in the forks of media and cubitus (Fig. 161). Fore metatarsus about 1.25 longer than the tibia. Rouville Co. Que.! Oct., Ithaca, N. Y. April.

4. *Exechia nexa*. n. sp.

Male. Length 5 mm. Thorax reddish brown; abdomen brown, darker brown posteriorly, hind margins of segments 2-5 faintly dusky yellow; hypopygium yellow (Fig. 34). Foremetatarsus and tibia subequal in length. Wings hyaline, tinged with brown (Fig. 162). Ithaca, N. Y.

5. *Exechia abrupta* n. sp.

Male. Length 4 mm. Thoracic setæ black; abdomen yellow, each segment with large, brown, dorsal triangle widest part on the anterior margin, on all segments, except 1 and 2, the anterior angles meeting on the venter, apex not reaching the posterior margin except on 5, 6 wholly brown; hypopygium yellow

(Fig. 35). Fore metatarsus about 1.3 tibia in length. Wings hyaline, tinged with yellow (Fig. 163). Ithaca, N. Y.

6. *Exechia canalicula* n. sp.

Male. Length 5 mm. Mesonotum with 3 wide brown stripes, humeri and space between the stripes yellow; scutellum, metanotum and pleura paler brown; setæ black. Abdomen as in *E. abrupta;* hypopygium (Fig. 36) black. Fore metatarsus about 1.06 the tibia in length. Wings hyaline, yellow tinged (Fig. 164). N. C.! N. J., July.

Female. The brown of the abdomen a little more extended, sixth segment also with yellow margin. N. C.

7. *Exechia cincinnata* n. sp.

Male. Length 3-4 mm. Thorax brown, humeri yellow, setæ blackish. Abdomen dark brown, each side of segments 2, 3 and 4 each with a yellow triangle one side of which rests on the anterior margin of the segment, the other meeting the side of the opposite triangle along the venter; hypopygium (Fig. 37) yellow, with strong, curved, brown hairs, hence the specific name. Fore metatarsus very little longer than the tibia. Wing hyaline, tinged with yellow (Fig. 165).

Female. Sides of segment 5 also yellow. Orono, Maine! Oct.; Burlington, Vt., (C.W.J.) June; Mass., (C.W.J.), April, June, Sept., Dec., Ithaca, N. Y.

The Orono specimens reared from *Boletus granulatus.*

8 *Exechia quadrata* n. sp.

Male and female. Length 4.5 mm. Head, thorax and abdomen yellow, the apical half of the antennæ, center of the mesonotum, metanotum, and the posterior abdominal segment, usually more dusky yellow, hypopygium with a large quadrangular ventral plate (Fig. 38a). Fore metatarsus about 1.10 longer than the tibia. Wings hyaline tinged with yellow (Fig. 166). Cape May, N. J. (Viereck) Sept.; Price Co., Wis., (W.M.W.) Aug.; Ithaca, N. Y.! Aug. Hemlock Falls, N. J., (Weidt), Aug.

9. *Exechia satiata* n. sp.

Male. Length 2.5 mm. Dorsum of thorax usually pale brown, pleura dusky yellow. Abdomen yellow, hind margins

of the first 4 segments narrowly brown and the whole of 5 and 6 dark brown or black; hypopygium yellow (Figs. 39, 40) Fore metatarsus about 1.10 longer than the tibia. Wings hyaline, tinged with yellow (Fig. 167).

Female. Hind margins of all abdominal segments widely brown, produced forward on the median line. Ithaca, N. Y., July, reared from a shelving mushroom.

10. *Exechia nugatoria* n. sp.

Male. Length 4.5 mm. Pleura dusky yellow to light brown. Abdomen dark brown, venter of first 3 segments yellow, extending up on the sides of the third segment; hypopygium yellow (Fig. 41). Fore metatarsus about 1.15 longer than the tibia. Wings hyaline, tinged with yellow (Fig. 168). Kingston, R. I. (J.B.). Nov., Price Co., Wis. (W.M.W.) Aug., Ithaca, N. Y.! July, Aug.

11. *Exechia nativa* n. sp.

Male. Length 4.5 mm. Pleura brown, the abdomen as in *E. nugatoria*, but the anterior margin of the 4 segments on each side with oval yellow spot; hypopygium yellow (Fig. 42). Fore metatarsus about 1.15 longer than the tibia. Wings hyaline tinged with yellow (Fig. 169). Orono, Me.! Oct.; Ithaca, N. Y., Nov. Reared from *Collybia* sp.?

Female. A specimen from Montpelier, Vt., (C.W.J.) June, which I believe belongs here, is similar to the male but each segment of the abdomen is widely margined with brown on sides and dorsum, produced forward on the median line.

12. *Exechia interrupta* Zetterstedt.

Dept. Scand. XI. 4240. 1852.

Male. Length 3.5-4 mm. Similar to *E. nugatoria* but the fourth segment is also largely yellow on the venter and sides. Hypopygium as figured (Fig. 43).

Female. First and sixth abdominal segments dark brown, the intermediate segments with dark triangles, smallest on the fourth and fifth, caudal segments yellow. "Europe and Greenland."

13. *Exechia palmata* n. sp.

Male. Length 3.5 mm. Thorax and abdomen dark brown; hypopygium yellowish (Fig. 44). Fore metatarsus about 1.10 longer than the tibia. Wings hyaline, tinged with brown (Fig. 170).

Female. Anterior half of the sides of the intermediate abdominal segments yellow. Torrey's Lake, Jackson Lake and Hunter's Creek! Wyo. (W.M.W.) Sept., Selkirk Mts., B. C. (J.C.B.) July; Mt. Rainier, Wash (J.M.A.) Aug.

14. *Exechia fungorum* Degeer.

Ins. VI. 142. 14 p. 22, fig. 1-13 (Tipule).

Male. Length 4 to 4.7 mm. Coloring as with *E. palmata*, a yellow humeral spot present, hypopygium dusky yellow (Fig. 45). Fore metatarsus about 1.15 longer than the tibia. Wings hyaline, tinged with brown.

Female. Similar to *E. palmata* in coloring, but yellow coloring less extended. "Europe and Greenland."

15. *Exechia assidua* n. sp.

Male. Length 3.5 mm. Thorax brown, dorsum dark brown, humeri yellow, hairs yellow, setæ black. Abdomen brown, anterior part of the venter a little paler, posterior segments almost black, hypopygium dusky yellow (Fig. 46). Fore metatarsus about .87 of the tibia. Wings hyaline, tinged with brown (Fig. 171).

Female. A defective specimen from the same place, which may belong here, differs only in having fore metatarsus and tibia subequal, and in having the fork of the cubitus slightly more distad. Mt. Constitution, Orcas, Id. Wash. (J.M.A.), July.

16. *Exechia auxiliaria* n. sp.

Male. Length 2.5 mm. Dorsum of thorax brown; abdomen brown, the anterior part of the venter and the sides of segment 3, yellow; hypopygium (Fig. 47). Fore metatarsus about 1.05 longer than the tibia. Wings hyaline, tinged with yellow (Fig. 172). Price Co., Wis. (W.M.W.), Aug., Ithaca, N. Y.!

17. *Exechia bellula* n. sp.

Male. Length 2.5 mm. Similar to *E. auxiliaria* but with

brown pleura and with brown parts darker brown, posterior end of abdomen nearly black and different hypopygium (Fig. 48). Fore metatarsus and tibia subequal. Wings (Fig. 173) hyaline, tinged with brown.

Female. Similar but the lower anterior part of the sides of the intermediate abdominal segments more or less yellow. Orono, Me. Nov.

18. *Exechia bella* n. sp.

Male. Length 2.5 mm. Thorax brown, humeri yellow, abdomen brown, the anterior part of the venter, yellow, this color extending well up the sides on segments 3 and 4, thus resembling *E. interrupta:* hypopygium yellow (Fig. 49). Fore metatarsus about 1.06 longer than the tibia. Wings hyaline tinged with yellow (Fig. 174). Price Co. Wis., (W.M.W.), Aug.; Ithaca, N. Y.!

19. *Exechia captiva* n. sp.

Male. Length 2.5 mm. Similar to *E. bella* in coloring but differs in having more yellow upon the pleura and some on the sides of abdominal segment 4; hypopygium also differs (Fig. 50). Fore metatarsus and tibia about 1.04 longer than the tibia. Wings hyaline, tinged with yellow (Fig. 175). Cape May, N. J.! (Viereck) Sept.; Burlington, Vt., (C.W.J.) June; Boston, Mass. (C.W.J.), Sept.; N H. (Weed).

20. *Exechia absoluta* n. sp.

Male. Length 3.5 mm. Thorax brown, sides lighter brown, humeri yellow. Abdomen dark brown, the venter of the first 3 segments narrowly, an indistinct spot on each side of segment 2 and a larger, more distinct one on sides of 3, yellow; hypopygium yellow (Fig. 51). Fore metatarsus and tibia subequal. Wings hyaline, tinged with brown (Fig. 176). Rouville Co., Que.; Orono, Me.! Oct. Reared from *Bolctus granulatus.*

Female. Like the male but with broad dark brown or blackish margins on each segment produced along the median line, thus leaving the venter and triangular spots on the sides, yellow. Ithaca, N. Y.; Brookings, S. D. (J.M.A.); New Haven, Ct., (Viereck), Riverton, N. J. (C.W.J.).

21. *Exechia capillata* n. sp.

Male. Length 3.5 mm. Thorax and abdomen dark brown, humeri and small spot on venter of segments 2 and 3 faintly yellow; hypopygium yellow (Fig. 52). Fore metatarsus and tibia subequal in length. Wings hyaline, tinged with brown (Fig. 177).

Female. Like the male but venter yellow, this color extending up on the sides along anterior margin of each segment.

Kingston, R. I. (J.B.), May; Dinwiddie Creek and Torrey's Lake, Wyo. (W.M.W) Sept.; Stanford Univ., Cal. (J.M.A.) Feb.; Ithaca, N. Y.! May, Sept. Bred from *Collybia dryophila.*

22. *Exechia obediens* n. sp.

Male. Length 3.5 mm. Thorax and abdomen brown; hypopygium dusky yellow (Fig. 53). Fore metatarsus about 1.04 longer than the tibia. Wing hyaline, tinged with brown (Fig. 178). Stanford Univ.! (J.M.A.) Feb.; Berkeley, Cal., (W.M.W.) March.

23. *Exechia attrita* n. sp.

Male. Length 3.5 mm. Thorax and abdomen brown, lateral margins of the mesonotum paler, posterior end of abdomen darker brown, humeri and venter and sides of segment 2 and 3, yellow; hypopygium dusky yellow (Fig. 54). Fore metatarsus and tibia subequal in length. Wings hyaline, tinged with brown (Fig. 179).

Female. Like the male but venter yellow, this color extending up on the sides along anterior margin of each segment. Wis., (W.M.W.) Aug.; R. I. (J.B.), Nov.; Ithaca, N. Y. Aug.; Orono, Me., Nov.; Forest Hill, N. J.; (Weidt), Apr., Nov.

24. *Exechia repanda* n. sp.

Male. Length 3 mm. The mesonotum, scutellum and metanotum brown, the humeri, pleura and lateral margins of the mesonotum yellow. Abdomen dark brown; the venter of segments 1, 2 and 3, the posterior part of the sides of 2, the greater part of the sides of 3, and hypopygium (Fig. 55) yellow. Fore metatarsus but little if any longer than the tibia. Wings hyaline, tinged with brown (Fig. 180). Ithaca, N. Y.! Aug.

Female. Like the male but with abdomen like that of the female of *E. attrita.* Boston, Mass., (C.W.J.). Sept.

25. *Exechia absurda* n. sp.

Male. Length 3 mm. Thorax brown, pleura a little paler brown, humeri yellow. Abdomen dark brown, the venter of segment 2, venter and sides of 3, and hypopygium yellow (Fig. 56). Fore metatarsus about 1.1 longer than the tibia. Wing hyaline, tinged with brown (Fig. 181). Ithaca, N. Y.! and Orono, Me. Nov.

26. *Exechia casta* n. sp.

Male. Length 3.5 mm. Thorax and abdomen brown, the latter darker brown, humeri yellow; hypopygium yellow (Fig. 57). Fore metatarsus about .95 as long as the tibia. Wings hyaline tinged with brown (Fig. 182).

Female. Like the male but the anterior margin of each segment on the venter and sides sometimes faintly tinged with yellow. Black Rock Creek, Dubois,! Dinwiddie Creek, Hunter's Creek, Wyoming (W.M.W), Sept.

27. *Exechia analis* Adams.

Wash. Carnegie Inst. Pub. 67. 37. 1907. (*Mycetophila*.).

Male. Length 4 mm. Head brownish black, mouth parts and basal joints of antennæ yellow, remaining joints of antennæ light brown. Thorax brownish black, lateral margins of mesonotum and pleura brownish-yellow, mesonotum with short yellow pile and black bristly hairs, the latter distributed along the sides; scutellum with an apical pair of strong bristles. Abdomen brownish-black, apex yellow, with short yellow pile. Coxæ yellow, femora light yellow, tibia and tarsi becoming darker distally; the front tibiæ without bristles except the apical ones, the second are provided with a row of indistinct setulæ and the hind tibiæ have rather strong bristles; front tarsi a little over twice as long as front tibiæ; middle tarsi above twice as long as middle tibiæ, hind tarsi 1.5 times as long as their tibiæ. Wings nearly hyaline, Rs and anterior branch of media divergent distally, furcation of media in front of base of Rs, furcation of cubitus considerably posterior to it. Halteres light yellow. "Mayfield Cave, Ind."

The type specimen, which was sent to me by Dr. Adams for examination, has an hypogygium resembling that of *E. albiseta*, the longer process very similar to that shown in fig. 54, but

the postero-ventral angles of the hypopygial sclerite are produced almost as far as the tips of the articulated processes in the form of slender, blunt almost spine-like lobes, in *E. analis*.

27. Genus *Dynatosoma* Winnertz.

Verh. Zool.-bot. Ges. Wien. XIII, 947, 1863.

Front broad, anterior margin not produced into a triangle, vertex high; ocelli usually 2 in number, large; the middle one, when present, very minute; Thorax pubescent, margins setose. scutellum semicircular with setose margin. Legs stout, hind femora each usually with 3 ranges of stout setæ on extensor surface. Costa not extended beyond tip of Rs; subcosta nearly half as long as the basal cell R and ends in R_1; branches of the cubitus widely divergent; first anal long but incomplete, strong.

Table of Species.

a. Cubitus forks distad of the basal section of the radial sector; wing with distinct spots; 3 ranges of setæ on each hind tibia.
  b. Thorax largely and abdomen, fuscous; hypopygium (Fig. 58). 1. *nigrina* n. sp.
  bb. Thorax largely and basal portion at least of abdomen, yellow, hypopygium (Fig. 59). 2. *fulvida*.
aa. Cubitus forks proximad of the base of radial sector; wing unspotted; 2 ranges of setæ on each hind tibia.
  b. Thorax black. 3. *thoracica*.
  bb. Thorax fulvous. 4. *placida* n. sp.

1. *Dynatosoma nigrina* n. sp.

Male. Length 5 mm. Head fuscous, antennæ subfuscous basal 3 or 4 joints and palpi yellowish. Thorax fuscous, the narrow posterior angles of the mesonotum and the humeri, widely, reddish yellow; hairs and setæ yellow. Abdomen blackish, the hind margins of the segments narrowly and indistinctly, yellow; hairs, appressed, yellow; hypopygium (Pl. 7, fig. 19, Genera Insectorum, Fasc. 93) and (Fig. 58). Coxæ yellow, middle and hind ones each with an oval black spot near the apex on the outer side; femora and tibiæ, yellow, the bases of all and the apices of middle and hind femora, black, tip of hind tibia black; tarsi brownish. Wing grayish hyaline, marked with a large brown central spot, a preapical fascia and a faint grayish apical margin (Fig. 183). Halteres yellow. Mass.

2. *Dynatosoma fulvida* Coquillett.

Canad. Ent. XXVII. 201. 1895.

Male. Length 4.5 mm. to 7 mm. Head dusky yellowish with darker transverse fascia, or wholly brown, antennæ subfuscous, 4 or 5 basal joints and palpi yellowish. Thorax reddish yellow, hairs yellow, setæ reddish yellow to brown. Abdomen reddish yellow, the 3 posterior segments largely subshining blackish with yellow margins; hypopygium (Fig. 59). Coxæ and legs yellow, the tarsi and the tips of the hind femora brownish. Wings grayish hyaline, marked with a large brown central spot, a preapical fascia and a fainter grayish apical margin (Fig. 184). Halteres yellow. Capens, Me. (C.W.J.), July; Friday Harbor, Washington (J.M.A.), May; Ithaca, N. Y.

Female. Similar to the male, but the abdomen with less dark coloring, in 2 specimens wholly reddish yellow. Selkirk Mts. (J.C.B.); Friday Harbor, Washington (J.M.A.), May; Ithaca, N. Y., June.

3. *Dynatosoma thoracica* Coquillett.

Proc. U. S. Nat. Mus. XXIII. 598. 1901.

Male and female. Length 4 to 5 mm. Head black, upper part of face, base of antennæ and the mouth parts yellow, thorax and scutellum black, subopaque; abdomen dark brown, the first 4 segments partly or wholly reddish yellow; legs yellow, tarsi brownish, anterior tibiæ each bearing about 4 downwardly directed spines at apex of outer side, the anterior spine the longest, nearly half as long as the tibial spur; many of the lateral bristles of middle and hind tibia much longer than greatest diameter of the tibiæ, those on inner side of the middle tibiæ shorter than greatest diameter of the latter; wings grayish hyaline, tinged with yellowish along the costa, cubitus forking about opposite the crossvein. Halteres yellow. "Ill., N. H." An examination of the type shows that there are 2 ranges of setæ on each hind tibia.

4. *Dynatosoma placida* n. sp.

Male. Length 5.5 mm. Head fulvous, frontal groove dusky, ocelli 2, face and palpi pale yellow, antennæ fuscous, 4 or 5 basal joints yellowish, setæ on the inner eye margin, brown. Thorax fulvous, mesonotum with 3 indistinct pale brown vittæ, setæ pale brown; pleura, scutellum, and metanotum yellow;

scutellar setæ brown. Abdomen fulvous, shining, each segment with a brown triangular "saddle," broadest posteriorly, indistinctly divided along the median line; hypopygium shining fulvous, prominent, superior claspers slender, curved, each with curved black spine at the tip and a long stout subapical seta. Coxæ and legs yellow, tarsi darker, hind tibiæ each with 2 ranges of setæ. Wings yellow hyaline, veins fulvous (Fig. 215). Kearney, Ont., (M. C. Van Duzee), July.

28. Genus *Opistholoba* Mik.

Wien. Ent. Zeit. X. 87, 1891.

Ocelli three, laterals contiguous to the eye margin, middle one very minute; hypopygium very large and conspicuous, much broader than the abdominal segments, husk-like (Fig. 60). Ventral posterior margin of the sixth abdominal segment in the female provided with a row of long setæ which project beyond the tip of the abdomen. In other respects like *Mycetophila*.

Opistholoba ocellata Johannsen.

Genera Insectorum, Fasc. 93, 126. 1909.

Male. Length 3 mm. Head shining black, antennæ fuscous, 4 or 5 basal joints and the palpi yellow. Thorax and abdomen deep brown or black; large quadrangular spot on each humerus, a minute spot on each posterior angle of the mesonotum, and the large hypopygium, yellow. Hypopygium when seen from the side, subtriangular, folded under the abdomen, nearly reaching the middle of the fourth abdominal segment (Fig. 60 See also pl. 7, fig. 18, Genera Insectorum, Fasc. 93).

Coxæ and legs yellow, the tarsi slightly darker, tips of hind femora blackish; middle tibiæ each with one short and two long setæ on the flexor surface. Wings grayish hyaline, with a central spot and a short preapical fascia, cubitus forks slightly proximad of the fork of the media (Fig. 185). Halteres yellow. Ithaca, N. Y. May. Aug.

29. Genus *Epicypta* Winnertz.

Verh. Zool-bot. Ges. Wien. XIII. 909, 1863.

Head round, flattened in front, the anterior margin of the thorax produced over it; front broad, its anterior margin pro

duced into a triangle which descends to the base of the antennæ: ocelli small, laterals contiguous to the eye margin, the middle one minute, placed in a groove at the base of the frontal triangle. Legs strong, with tibial setæ which on the hind legs are noticeably longer than the diameter of the tibia at the widest part. Costa more or less produced beyond the tip of Rs; fork of the cubitus under or proximad of the fork of the media, the angle at the base very acute, the branches slightly diverging, anal strong but incomplete.

Table of Species.

a. Wings unspotted, hyaline.
  b. Cubitus forks proximad of the prominal end of the crossvein by the length of this vein.
    c. Humeri dusky yellow; costa produced. 1. *pulicaria.*
    cc. Humeri black; middle ocellus absent; costa produced but little if at all. *Mycetophila anomala* n. sp.
  bb. Cubitus forks under the crossvein. *Mycetophila vitrea.*
aa. Wing marked with brown.
  b. Mesonotum shining, unicolored, blackish; a single spot on the wing. 2. *punctum.*
  bb. Mesonotum yellowish with 3 dark subconfluent stripes, or sometimes confluent, leaving only the humeri and anterior margin yellow; wing with central spot and broad preapical spot which may be rather faint, rarely wanting. 3. *trinotata.*

1. *Epicypta pulicaria* Loew.

Berlin. Ent. Zeitschr. XIII, 151, 1869.

Female. Length 2.5 mm. Black, moderately shining, clothed with short appressed dusky pile. Head black, palpi yellow, antennæ fuscous, the scape and the immediate base of the flagellum reddish. Coxæ and legs pale yellow, the tibial spurs and the fore tarsi fuscous, the other tarsi subfuscous; middle tibiæ each with 2 setæ on flexor surface. Wings yellowish gray, hyaline, the costal cell and part of cell R yellowish. Halteres yellow. "Pa."

After examining the type at Cambridge, I may add that the humeri are dusky yellow, R and Rs curved parallel to the coast, the cell between quite narrow, cubitus forks the length of the crossvein proximad of the proximal end of the latter.

2. *Epicypta punctum* Stannius.

Observ, de Myc. 16. 1831 (*Mycetophila*).

Male and female. Length 3 mm. Head black, subshining. antennæ brown, scape, at least the second joint, and the palpi reddish yellow, hairs yellowish. Thorax and abdomen brownish black with appressed yellow hairs, hypopygium dusky yellowish; longer hairs at the bases of the wings and the 4 scutellar setæ, black. Coxæ and legs reddish yellow, tips of hind femora, the spurs and the tarsi brown; middle tibiæ each with 1 shorter and 2 longer setæ on the flexor surface; fore metatarsus very slightly shorter than the tibia, subequal in the female; the entire tarsus about 2.4 the tibia in length; soles of the 2-4 fore tarsal joints slightly swollen in the female. Wing hyaline, tinged with brownish yellow, with a brownish central spot; costa noticeably produced beyond the tip of Rs; the base of Rs, the forks of media and cubitus nearly equidistant from the base of the wing, or the last very slightly proximad; second anal long, though incomplete, somewhat curved up at the end. Halteres yellow. "Europe and N. J." Auburndale, Mass. (C.W.J.), Aug.

3. *Epicypta trinotata* Staeger.

Kröyer: Tidsskr. 242. 1840 (*Mycetophila*).

Male and female. Length 3 mm. Head and antennæ brown, scape and palpi yellow, hairs yellow. Mesonotum reddish yellow with 3 subconfluent brown stripes, or in the male, brown, with only yellow humeri, pleura and metanotum brown, scutellum brown in the male, yellow with brown lateral spots in the female, setæ black, hairs appressed, yellow. Abdomen dark brown with appressed yellow hair, hypopygium yellowish (Fig. 61). Coxæ and legs yellow, hind margins and tips of hind femora, the spurs and the tarsi brown; fore metatarsus and tibia subequal in length, the entire tarsus about 2.2 longer than the tibia, middle tibiæ each with a short and 2 long setæ on flexor surface. Wings yellowish hyaline, with a brown central spot, an elongate pale brownish preapical cloud, a pale brown spot behind the fork of the cubitus, and a yellow costal cell (Fig. 186). Excepting the central spot the markings are sometimes quite faint. Halteres yellow. Mass., (W.M.W.); N.

Adams, Mass., (C.W.J.). June; Ithaca, N. Y., June-Aug.: Kingsmere, Canada, (Dr. Hewitt). The Canadian specimens were reared from *Enteridium spendens*.

30. Genus *Mycothera* Winnertz.

Verh. Zool.-bot. Ges. Wien XIII. 913, 1863.

Front broad, its anterior margin produced into a triangle the apex of which reaches to the base of the antennæ; ocelli small, the laterals contiguous to the eye margin, the minute middle one placed in a groove at the base of the frontal triangle. Anal segments and forceps small. Tibial setæ strong, the middle tibia frequently with one or more on the flexor surface, fore metatarsus shorter than the tibia. Costa not produced beyond the tip of Rs, cubitus forks proximad, at, or distad of the base of Rs, the branches convergent or parallel toward their apices. The 3 ocelli distinguish this genus from *Mycetophila*, the converging or parallel branches of the cubitus separate it from *Epicypta*. The larvæ live in decaying wood and fungi.

Table of Species.

a. Cubitus forks as far distad of the crossvein as the length of the cell Cu_1.
  b. Thorax black; wings hyaline, with a brown fascia which fills apex of cell R_1 and crosses Rs. 1. *analis*.
  bb. Thorax brownish or yellowish; hypopygium (Fig. 62). 2. *paula*.
aa. Cubitus forks proximad, under, or but slightly distad of the fork of the media.
  b. Cubitus forks distinctly proximad of the proximal end of the crossvein; middle tibia with 2 or 3 setæ on the flexor surface; apical wing cloud diffuse; abdomen reddish, indistinctly fasciate. 3. *paradoxa* n. sp.
  bb. Cubitus forks only slightly proximad, at, or distad of the proximal end of the crossvein.
    c. Preapical wing cloud diffuse, its margin ill defined or wanting; or if more distinct, then middle tibia each with 1 setæ on flexor surface.
      d. Middle tibiæ each with two or three setæ on flexor surface; females. 4. *Mycothera* sp.
      dd. Middle tibiæ each with 0 or 1 seta on flexor surface.
        e. Thorax reddish or reddish brown with sub fuscous dorsum; abdomen reddish brown indistinctly fasciate.
          f. No apical wing cloud; hypopygium (Fig. 64). 5. *mitis* n. sp.

ff. With diffuse apical wing cloud; hypopygium (Fig. 65). 6. *recta* n. sp.

ee. Dark brown or blackish species; hypopygium (Fig. 66).

f. Wing with hyaline spot under Rs (Fig. 191). 7. *fenestrata.*

ff. Wing not marked thus. 7a. var. *praenubila* n. var.

cc. Preapical wing cloud sharply defined with an anterior spur which fills out the apex of cell R_1; middle tibiæ each with 2 or 3 setæ on flexor surface. 8. *impellans* n. sp.

1. *Mycothera analis* Coquillett.

Proc. U. S. Nat. Mus. XXIII. 598, 1901. (*Exechia*).

Male. Length 2 mm. Head black, the face, mouth parts and base of antennæ yellow; thorax black slightly polished, a small triangular yellow spot below the humeri; abdomen dark brown, the third and fourth segments, except hind margin of the latter, yellow; legs yellow, the broad apices of hind femora dark brown, tarsi brownish yellow; wings hyaline, a brown facia fills the apex of cell R_1 and crosses cell Rs. "Delaware Water Gap, N. J."

2. *Mycothera paula* Loew.

Berlin. Ent. Zeitschr. XIII. 151, 1869.

trifasciata Coq. Invert. Pacifica I. 18. 1904. (*Mycetophila*).

Male and female. Length 2.2-2.5 mm. Head fuscous, antennæ brown, the 3 or 4 basal joints and the palpi yellow. Mesonotum reddish brown, opaque, the front and lateral margins and front angles yellow; hairs yellow, setæ brown; scutellum yellow, pleura and metanotum brown. Abdomen black, genitalia (Fig. 62) yellow. Legs yellow, tips of hind femora, of middle and hind tibiæ, and the larger part of the tarsi, brown; middle tibiæ each with 2 setæ on flexor surface. Wing grayish hyaline with 3 brown fasciæ (Fig. 187). Halteres yellow.

I have seen the types of *paula* and *trifasciata,* and they do not appear to differ. "Middle States," "Stanford Univ., Cal.;" Carbondale Landing, Columbia River, B. C., (J.C.B.); Ithaca, N. Y., Aug., Oct.; Brookside, N. J. (Weidt).

3. *Mycothera paradoxa* n. sp.

Female. Length 3 mm. Head and antennæ dark brown, the scape and palpi yellow. Thorax reddish yellow, dorsum with faint indication of 3 dark stripes, the scutellum, center of metanotum and the lower margin of the pleura, brown; hairs yellow; setæ blackish. Abdomen reddish yellow, each segment with a broad, indistinct, subfuscous transverse fascia; ovipositor yellow (Fig. 63). Coxæ and legs yellow, tarsi brown; middle tibiæ each with 2 or 3 setæ on the flexor surface. Wings grayish hyaline, with a central spot and a diffuse preapical cloud; cubitus forks distinctly proximad of the proximal end of the crossvein (Fig. 188). Halteres yellow. Ithaca, N. Y.

4. *Mycothera* sp.

Female. Length 3 mm. Thorax and abdomen brown, humeri yellow. Cubitus forks about under the fork of the media. In other respects like *M. paradoxa*. Black Rock Creek, Wyo., Price Co., Wis., (W.M.W.); Ithaca, N. Y., Aug. In one N. Y. specimen the thorax is yellow with 3 distinct brown stripes, and the apical wing cloud faint, in another the apical wing cloud is entirely wanting.

5. *Mycothera mitis* n. sp.

Male. Length 3 mm. Head and antennæ brown, scape and palpi yellow. Thorax reddish brown, the center of the mesonotum, scutellum and metanotum fuscous, humeri yellowish, setæ black. Abdomen dark reddish brown, hind margin of each tergite indistinctly yellow, venter and hypopygium yellow (Fig. 64). Coxæ and legs yellow, tarsi brown; middle tibiæ each with a single seta on flexor surface. Wing hyaline, central spot pale brown, no preapical cloud (Fig. 189). Halteres yellow. Wisconsin, July.

6. *Mycothera recta* n. sp.

Male. Length 3 mm. Head and thorax brown, scape and palpi yellow. Thorax reddish brown, the center of the mesonotum, the scutellum and metanotum brownish, humeri yellow, setæ black. Abdomen dark reddish brown, darker posteriorly, hind margins of segments and venter indistinctly yellowish, hypopygium dusky yellow (Fig. 65). Coxæ and legs yellow, tarsi and tips of hind femora brown; middle tibiæ each with

a single seta on flexor surface. Wing hyaline, central spot and diffuse preapical cloud pale brown (Fig. 190). Halteres yellow. Ithaca, N. Y. (Aug.).

Female. A female from the same locality with dark brown thorax, yellow humeri, brown abdomen with yellow venter and yellow margins on the tergites, may belong here.

7. *Mycothera fenestrata* Coquillett.

Inv. Pacifica, I. 19. 1905 (Mycetophila).

Male. Length 3 mm. Head, antennæ, thorax and abdomen dark brown, scape, palpi, humeri and hypopygium (Fig. 66) dusky yellow. Coxæ and legs yellow, the tarsi, tips of coxæ, of middle and hind tibiæ and of hind femora brownish, middle tibiæ each with one seta on the flexor surface. Wings hyaline with a brown spot over the crosvein, apical third of wing smoky less distinct posteriorly, a clear spot behind Rs below tip of R_1 (Fig. 191). Halteres yellow. Buffalo, N. Y.; Moscow, Id. (J.M.A.); "Stanford Univ., Cal."

7a. *Mycothera fenestrata,* var. *praenubila* n. var.

Male. Only the anterior part of the preapical wing cloud is distinct, the wing marks appearing as in *M. recta.*

Female. Thorax more reddish brown, with dark vittæ feebly indicated. Friday Harbor, Wash. (J.M.A.); Price Co., Wis. (W.M.W.); Alabama; Ithaca, N. Y., Forest Hill, N. J. (Weidt), April.

8. *Mycothera impellans* n. sp.

Male. Length 2.5-3 mm. Head and antennæ dark brown, the scape and palpi yellow. Thorax brownish; the mesonotum, scutellum and metanotum fuscous, setæ brown. Abdomen brownish, each tergite darker posteriorly, but the extreme margin and the venter pale; hypopygium yellow (Fig. 67). Coxæ and legs yellow, tarsi and tips of hind femora, brown; middle tibia with 2 or 3 setæ on flexor surface. Wings hyaline, a brown central spot, and a brown sharply defined preapical spot, a spur of which is produced into the tip of cell R_1; apical margin of wing very faintly smoky (Fig. 192). Halteres yellow.

Female similar, but abdomen more uniformly brown. Mt. Ranier, Longmire's Spring, Wash., (J.M.A.) July, Aug.;

North Mt., Pa., North Adams, Mass., (C.W.J.) June; Lavallette, N. J., (Vierick) May; Ithaca, N. Y.! August.

Var. a. Female. Length 3.7 mm. Thorax dark brown, humeri and lateral margins of the mesonotum reddish yellow; abdomen blackish. Mt. Constitution, Orcas, Id. Wash. (J.M.A.) July.

31. Genus *Mycetophila* Meigen.

Illiger's Mag. II. 263, 1803; Klass, I, 90, 1804.

Fungivora Meigen, Nouv. Class. 16. 1800, (without type).

Head placed low on the thorax so that in profile it makes a continuous curve with the thorax, ocelli 2, placed close to the eye margin. Legs stout, tibial setæ stout, those of the hind legs larger than the greatest diameter of the tibia. Costa not produced; subcosta short, incomplete; cubitus forks nearly under the fork of the media, its branches nearly parallel apically; anal vein incomplete. The larvæ, which are commonly found in decaying wood and in fungi, possess transverse rows of microscopic ambulacral setulæ upon the margins of the segments of the venter.

The following table should be considered only as a guide: and if a specimen be found which cannot be placed, it must not be assumed undescribed without making a careful study of the hypopygium, the most reliable single character. Color and wing markings, and possibly even the number of the setæ of the middle tibia are subject to occasional variation.

Table of Species.

a. Three ranges of setæ on the extensor surface of the hind tibia, and with 2 or more setæ on flexor surface of middle tibia.
  b. Wing without a distinct cloud, though the petiole of the media itself may be darkened.
    c. Thorax subopaque, humeri and posterior lateral angles yellow; female. 1. *exstincta.*
    cc. Thorax shining black: hypopygium (Fig. 69). 2. *jucunda* n. sp.
  bb. Wing with distinct spots or cloud.
    c. Wing with a single spot which covers the crossvein.
      d. With 2 setæ on flexor surface of middle tibia: hypopygium (Fig. 70). 3. *perita* n. sp.
      dd. With 3 setæ on flexor surface of middle tibiæ: hypopygium (Fig. 68). 1. *exstincta.*

cc. Wing with preapical cloud or fascia in addition to the central spot.
d. Scutellum black, humeri yellow; females.
e. Preapical wing cloud does not reach vein M_1. 4 M. sp.
ee. Preapical wing cloud crosses M_2. 5. M. sp.
dd. Robust species with scutellum largely yellow.
e. Cubital cell broad, branches of Cu slightly divergent. 6. *procera.*
ee. Cubital cell moderate (Fig. 196), branches of Cu subparallel apically.
f. Wing with about 4 spots; one on each of M and Cu; hypopygium (Fig. 71). 7. *fastosa* n. sp.
ff. No distinct spots on media and cubitus; female. 8. M. sp.

aa. Two ranges of setæ on extensor surface of each hind tibia.
b. With no setæ on flexor surface of middle tibiæ.
c. Wing immaculate; last joint of palpus spatulate; hypopygium (Fig. 72). 9. *punctata.*
cc. With wing spots.
d. With but a central wing spot.
e. Thorax dark brown, with not more than 4 fine setæ near apex of hind tibia on inner lateral side; hypopygium (Fig. 73). 10. *falcata* n. sp.
ee. Reddish brown or yellow thorax; 5 or more fine setæ on inner lateral side of hind tibia apically.
f. Thorax yellow; apically half of inner lateral side of hind tibia ciliate; hypopygium (Fig. 74). 11. *mutica.*
ff. Thorax reddish brown, brown dorsum and pleura; hypopygium (Fig. 75). 11a *mutica* var. a.
dd. With 2 wing spots; branches of the cubitus slightly divergent; hypopygium (Fig. 76). 12. *lenis* n. sp.
bb. With one or more setæ on flexor surface of middle tibia.
c. With but one seta on flexor surface of middle tibia.
d. Wing without distinct spot. 17. *dolosa.*
dd. Wing with one or more spots.
e. Wing with discal spot and a preapical cloud which does not pass the media. 13. *monochaeta.*
ee. The apex of the wing more or less clouded, or other spots present.
f. Apex of wing brown, an oval hyaline spot below Rs. *Mycothera fenestrata.*
ff. Apex not distinctly clouded, a spot on cell M_2 distinctly separated from the preapical spot. 15. *quatuornotata.*
cc. With 2 or more setæ on flexor surface of middle tibia.
d. Wing without distinct spots.
e. With a distinct thickening of the apical half of the basal section of the media; fore metatarsus longer than its tibia. St. Vincent Isl. 16. *nodulosa.*

ee. Wing not so marked.
f. Mesonotum opaque dark brown. St. Vincent Isl. 17. *dolosa.*
ff. Mesonotum polished black, branches of cubitus diverging.
g. Cubitus forks under the crossvein. 18. *vittrea.*
gg. Cubitus forks proximad of the proximal end of the crossvein. 19. *anomala* n. sp.
dd. Wing with one or more spots.
e. Wing with only one spot which covers the crossvein.
f. Fore metatarsus longer than its tibia; mesonotum yellowish red. St. Vincent Isl. 20. *insipiens.*
ff. Fore metatarsus not longer or shorter than the tibia.
g. Thorax and abdomen blackish; length 2.3 mm; hypopygium (Fig. 78). 21. *bipunctata.*
gg. Thorax shining brown, lateral margins and a spot on center of scutellum yellow; length 3.7 mm. 22. *inculta.*
ee. Wing with 2 or more spots or clouds.
f. Abdomen yellowish, intermediate segments each with a large blackish spot on each side leaving a median yellow stripe; sometimes largely black with only a narrow median vitta; thorax with 3 subconfluent stripes, scutellum yellow.
g. Superior forceps of hypopygium rather broad and short, with a blunt black spine (Fig. 80). 23. *scalaris.*
gg. Superior forceps somewhat elongate (Fig. 82). 23a. *scalaris* var. a.
ff. Abdomen not marked thus.
g. Tibial spurs whitish abruptly tipped with black; thorax reddish yellow, moderately shining with 3 dark stripes; besides the central spot a series of 3 spots on the wing forming an irregular preapical fascia. 34. *sigmoides.*
gg. Tibial spurs not distinctly black tipped.
h. Middle tibiæ each with 3 or 4 setæ on flexor surface.
i. Fore tarsi slightly swollen below, joints 2, 3 and 4 wider than 1.
j. Ochraceous, shining, thorax with subconfluent dusky stripes; abdominal segments with wide yellow posterior margins. 24. *pinguis.*
jj. Dusky species, humeri yellow.
k. Incisures of abdomen yellow; hypopygium (Fig. 81). 25. *foecunda* n. sp.
kk. Abdomen wholly dark; hypopygium (Fig. 91). 26. *imitator* n. sp.

ii. Fore tarsi robust, but not swollen below.
j. Preapical wing cloud arises at the costal margin proximad of the tip of R_1.
k. Preapical wing cloud reaches apex of Rs.
l. Length 5 mm; hypopygium (Fig. 83). 27. *perlonga* n. sp.
ll. Length 3 mm. 26. *imitator* n. sp.
kk. Preapical wing cloud does not reach apex of Rs; length 2.5 mm. 28. *polita.*
jj. Preapical wing cloud does not cover tip of vein R_1.
k. Hind margin of abdominal segments broadly and distinctly yellow. 29. *fallax.*
kk. Hind margins of segments not broadly and distinctly yellow.
l. The superior forceps with about 6 blunt black spines and one longer curved one on each limb (Fig. 84). 30. *pectita* n. sp.
ll. The limbs of the forceps with fewer spines.
m. Preapical wing cloud produced to unite with a gray cloud on posterior margin; superior forceps with 3 or 4 blunt spines and a longer curved one (Fig. 85). 31. *lassata* n. sp.
mm. Preapical wing cloud abbreviated; superior forceps with one short blunt spine on each limb. 32. *lenta* n. sp.
hh. Middle tibiæ each with 1 or 2 setæ on flexor surface, rarely with an additional smaller one above.
i. Fork of the cubitus noticeably retracted proximad of the base of the crossvein; thorax reddish, slightly darker dorsally, margins of abdominal segments broadly yellow; length 4 mm. 33. *propinqua?*
ii. Fork of cubitus not retracted when thorax is reddish.
j. Species 4.5 mm long; preapical fascia extends to Cu_1, apical wing cloud present; coxæ and femora each with brownish spot; inner lateral side of hind tibiæ each ciliate to near the middle; hypopygium (Fig. 87). 35. *fatua* n. sp.
jj. Smaller species.

k. Cubitus forks slightly proximad of the proximal end of the crossvein; thorax and abdomen dull brown; hypopygium (Fig. 88). 36. *edura* n. sp.

kk. Cubitus forms under or distad of the fork of the media.

l. Preapical wing cloud diffuse, longitudinal in position, covers apices of veins R_1 and Rs; hypopygium (Fig. 89). 37. *exusta*. n. sp.

ll. Preapical wing cloud transverse in position, at least at proximal end.

m. Preapical wing cloud reaches M_2.

n. Thorax reddish with brown vittæ; preapical wing cloud reaches hind margin; hypopygium (Fig. 90). 38. *jugata* n. sp.

nn. Thorax dark brown.

o. Wing cloud reaches hind margin; scutellum dark brown; hypopygium (Fig. 91). 26. *imitator* n. sp.

oo. Wing cloud passes vein M_2.

p. Scutellum with yellow center and apex; hypopygium (Fig. 2). 39. *extenta* n. sp.

pp. Scutellum black. 40. M. sp.

mm. Preapical wing cloud does not reach vein M_2.

n. Middle and hind coxæ brown outwardly; proximal end of preapical cloud covers R_1, apex of wing with paler cloud; hypopygium (Fig. 93). 41. *edentula* n. sp.

nn. Middle and hind coxæ yellow; preapical wing cloud smaller; apex of wing not clouded; posterior angles of thorax yellow.

o. Scutellum yellow, sides darker. 42. *trichonota*.

oo. Scutellum black.

p. Fore tarsi swollen; preapical wing cloud oblique; hypopygium (Fig. 94). 42a. *trichonota* var. a.

pp. Fore tarsi not swollen; wing cloud broader; hypopygium (Fig. 95). 43. *socia* n. sp.

AUXILIARY TABLE TO SPECIES OF MYCETOPHILA sens. lat.

The species included in this table I cannot recognize. Some of them do not appear to belong to the genus Mycetophila as now restricted.

a. Wing with one or more spots.
  b. With a single spot which covers the crossvein.
    c. Head blackish, disk of thorax with 3 confluent blackish vittæ. 44. *discoidea.*
    cc. Head and thorax clay yellow. 45. *ichneumonea.*
  bb. With 2 wing spots.
    c. Head and thorax black; length 5 mm. 46. *bifasciata*
    cc. Head and thorax yellowish to brown.
      d. Length 2.5 mm; abdomen reddish brown. 47. *parva.*
      dd. Length 3 mm or over; abdomen reddish brown, segments with yellow margins.
        e. Preapical wing cloud broader but little longer than the central spot; halteres yellow; length 4 mm. 33. *propinqua.*
        ee. Preapical wing cloud much larger than the other.
          f. Halteres white; head brown; length 3.5 mm. 48. *laeta.*
          ff. Halteres and head tawny; length 3 mm. 49. *contigua.*
aa. Wing unspotted.
  b. Head black, thorax tawny with 3 broad black stripes, abdomen wanting. 50. *plebeia.*
  bb. Otherwise.
    c. Body brown, thorax with tawny stripe "forked in front on its hinder part," scutellum and breast yellow, abdominal segments yellow at base. 51. *obscura.*
    cc. Abdominal segments yellow at apex.
      d. Head brown, thorax ferruginous, reddish brown on disk. 52. *despecta*
      dd. Head and mesonotum dusky, (Allodia?).
        e. Halteres whitish, knob dusky before the tip. 53. *nubila.*
        ee. Halteres yellowish white. 54. *sericea.*

1. *Mycetophila exstincta* Loew.

Berlin Ent. Zeitschr. XIII. 152. 1869.

Female. Length 2.5 mm. Head fuscous, opaque, the face and mouth parts yellowish. Scape yellow, flagellum blackish, its base sometimes yellow. Thorax fuscous, subopaque, humeri and posterior angle, luteous. Scutellum wholly fuscous black. The first 5 abdominal segments fuscous, the venter and apex of the abdomen yellow. Coxæ and legs pale yellow, the tip of the hind femora fuscous, tarsi subfuscous, middle tibiæ with 3 setæ on flexor surface, tarsi slender, the hind metatarsus subequal in length to the remaining joints; wing veins luteous

with very indistinct spot on the petiole of the media. There are 3 ranges of setæ on the extensor surface of the hind tibia in the type specimen at Cambridge. "Middle States;" N. Adams, Mass. (C.W.J.) June.

Male. Length 2.5 mm. Thorax brown, subshining, anterior lateral margins yellow; hairs yellowish, setæ brown. Abdomen brown, venter yellowish; hypopygium with short, broad appendages (Fig. 68). Coxæ and legs yellow, hind femora tipped with brown; fore metatarsus about .8 as long as the tibia; middle tibiæ each with 3 setæ on flexor surface, hind tibiæ each with 3 ranges of setæ on extensor surface; hind metatarsus about 7-8 as long as the remaining joints. Wing yellowish hyaline, with rather indistinct central spot (Fig. 193). Halteres yellow, Auburndale, Mass., (C.W.J.) Aug.

2. *Mycetophila jucunda* n. sp.

Male. Length 2.5 mm. Head shining black, scape, palpi and base of first flagellar joint yellow, flagellum fuscous. Thorax shining black, small post humeral depression yellow, hairs dusky yellow to brown, setæ brown. Abdomen black; hypopygium small, globular (Fig. 69). Coxæ and legs yellow, hind femora tipped with black, fore metatarsus about .85 as long as its tibia; middle tibia with 3 setæ on flexor surface; hind tibiæ each with 3 ranges of setæ on extensor surface, hind metatarsus about .8 as long as the remaining 4 joints. Wing yellowish hyaline, unmarked (Fig. 194). Halteres yellow. Ithaca, N. Y., August.

3. *Mycetophila perita* n. sp.

Male. Length 3.0 mm. Head black; scape, basal joint of flagellum and palpi yellow; flagellum fuscous. Thorax shining brownish black, the humeri widely and the posterior lateral angles narrowly yellow, hairs and setæ brown; 4 scutellar setæ. Abdomen brown, venter and the posterior margins of the intermediate segments on the sides, yellow; hypopygium with one pair of appendages elongate (Fig. 70). Coxæ and legs yellow; fore metatarsus about 1-10 shorter than the tibia, middle tibiæ each with 2 setæ on flexor surface, hind tibiæ each with 3 ranges on extensor surface. Wing yellowish hyaline, with central spot (Fig. 195). Milwaukee, Wis., (W.M.W.), June; Wild Cat Canyon, Costa Co., Cal. (J.C.B.) Nov.; Ithaca, N. Y.! July.

4. *Mycetophila* sp.

Female. Length 3 mm. Resembles the foregoing, but the yellow abdominal fasciæ are wider, distinct also on the dorsum. The hind femora are broadly tipped with black, the fore metatarsus is about 3-4 the length of the tibia, middle tibiæ each with 3 longer and one shorter setæ on flexor surface; fore tarsal joints 2, 3, and 4 are much broader than 1. Wing with 2 distinct spots, the preapical spot fills apex of cell R_1 but does not reach vein M_1. Eastport, Maine, July.

5. *Mycetophila* sp.

Female. Length 2.5. Resembles No. 4 but the thorax is subopaque, abdomen is largely brown; the fore tarsi are not swollen, middle tibiæ each with 3 setæ on flexor surface, preapical wing spot is more slender and crosses M_2, and the fork of the cubitus is narrower. Price Co., Wis. (W.M.W.) August.

6. *Mycetophila procera* Loew.

Male. Length 5 mm. Head dusky reddish yellow; antennæ blackish, scape and base of flagellum luteous. Thorax luteous, with 3 dorsal stripes, the angles of the scutellum, pleural spots and the metanotum blackish; pile yellow, longer hairs and the setæ black. Abdomen blackish, the posterior margin of each segment narrowly, and the lateral margins widely yellow. Coxæ and legs yellow, slender, tips of hind femora black, flexor surface of each middle tibia with 4 or 5 setæ, tarsi long and slender, the metatarsus and the following joints of hind foot subequal. Besides the central spot there is a series of fuscous spots from the tip of cell R_1 across the wing, and the apical third of the posterior margin is gray; veins strong, the branches of the cubitus widely separated and slightly divergent. "New York."

There are three ranges of setæ on the extensor surface of the hind tibiæ in the type specimen.

7. *Mycetophila fastosa.* n. sp.

Male. Length 4 mm. Head blackish, dusky yellow on the sides; scape, palpi, and base of flagellum yellowish, flagellum blackish. Thorax subshining blackish, the wide humeral and posterior lateral angles, a spot in front of the scutellum, the scutellum, except the sides, yellow; hairs pale, setæ black,

abdomen brownish black, anteriorly more brownish, anterior part of venter pale brown; hypopygium (Fig. 71). Coxæ and legs yellow, the trochanters, a large spot on flexor surface near the base of all femora, tips of middle and hind femora and of middle and hind tibiæ, blackish, tarsi brown; fore metatarsus about 1-16 shorter than the tibia, middle tibiæ each with 2 setæ on flexor surface; hind tibiæ each with 3 ranges of setæ. Wing yellowish hyaline with central spot and several spots forming a broken preapical fascia (Fig. 196). Halteres yellow. Ithaca, N. Y.!

Female. Segments of abdomen narrowly margined with yellow, with an indication of a median longitudinal stripe on segment 2. Riverton, N. J., Delaware W. Gap, N. J. (C.W.J.).

8. *Mycetophila* sp.

Female. Length 3.5-4 mm. Similar to the foregoing but the preapical wing fascia is unbroken and does not reach M. In an Ithaca, N. Y. specimen, the thorax is wholly shining black, the hind margins of the intermediate abdominal segments narrowly yellow and the fore tarsi slightly swollen.

A specimen from Mt. Constitution, Washington, with wing marking as above is similar to *M. fasciata* but the disk of the thorax is brown. Another specimen from the same locality is similar to this but the narrow hind margins of the intermediate abdominal segments, the anterior part of the venter and narrow median dorsal stripes on segments 2 and 3 are yellow.

9. *Mycetophila punctata* Meigen.

Syst. Beschr I, 264. 1818.

Male and female. Length 4 to 6 mm. Ochraceous; the apical half of the antennæ, the center of the mesonotum, the "saddles" of each abdominal tergite, and the tarsi usually dusky yellow or in occasional, usually southern specimens, brownish; sometimes wholly yellow. Apical joint of palpus oval (Fig. 55, Plate I, Part I). Fore metatarsus and tibia subequal; no setæ on flexor surface of middle tibiæ, hind tibiæ each with 2 ranges on extensor surface; both middle and hind tibiæ each ciliate with a range of finer setæ on inner lateral surface, which are uniform in size on hind tibiæ and extend to above the middle; hind coxæ with a tuft of fine slightly

curved setæ near the tip on the hinder wide; hypopygium (Fig. 72. See also Pl. 7, fig. 17, Genera Insectorum, Fasc. 93). Wing yellow tinged, without spots (Fig. 56, Plate I, Part I and Fig. 245, Part III). Bred from several species of fleshy fungi. Our commonest species. Alab., Id., Mass., Maine, N. C., N. J., N. Y., R. I., Tenn., Tex., Wis., Wyo.

10. *Mycetophila falcata* n. sp.

Male and female. Length 2.5 mm. Head, thorax and abdomen dark brown; scape, palpi, and hairs yellow, setæ black; superior forceps of the hypopygium elongate, curved (Fig. 73) Coxæ and legs yellow, tarsi brownish; fore metatarsus about 1-16 shorter than the tibia; middle tibiæ without setæ on flexor surface; hind tibiæ each with 2 ranges on extensor surface; hind metatarsus nearly .8 as long as all of remaining joints. Wings yellowish hyaline, with a central spot (Fig. 197). Halteres yellow. Ithaca, N. Y.!

A male specimen from Mt. Constitution, Id., differs in having humeri and scutellum yellowish; a female from the same locality differs from the female from N. Y. only in being slightly paler brown.

11. *Mycetophila mutica* Loew.

Berlin. Ent. Zeitschr. XIII. 152. 1869.

Female. Length 2.7 mm. Head reddish yellow, front subcinereous, face, mouth parts, scape and base of flagellum yellow; flagellum brownish. Thorax opaque reddish yellow, scutellum similarly colored. Abdomen fuscous, the sides of the last 4 segments widely yellowish. Coxæ and legs pale yellow, tarsi slender, subfuscous, the fore tarsus twice as long as the tibia, the hind metatarsus a little longer than the remaining joints taken together; middle tibiæ without setæ on flexor surface. Wing with a central spot. "Middle States." Hind tibiæ each with 2 ranges of setæ on extensor surface; inner lateral side ciliate to the middle.

Male. Differs in having abdomen wholly brown; hypopygium (Fig. 74). N. C., (W.B.); N. Y.; Selkirk Mts., B. C., (J.C.B.); Wash. (J.M.A.); Wis., and Wyo. (W.M.W.).

Var. a. Differs in having disk of mesonotum brownish, a slight difference in the form of the inferior forceps (Fig. 75),

and in having fewer cilia on inner lateral side of hind tibia. Wash. (J.M.A.).

12. *Mycetophila lenis* n. sp.

Male. Length 4 mm. Head brown, yellowish at the sides; scape, base of flagellum and palpi yellow, flagellum brown. Thorax yellow, a spot, 3 subconfluent vittæ on dorsum, center of the metanotum, and the pleura in part, brown; hairs pale, setæ dark. Abdomen brown, the anterior margin of each segment very narrowly, the posterior margin more widely and the venter, yellow; hypopygium (Fig. 76). Coxæ and legs yellow, tips of middle and hind femora narrowly dark brown, tarsi brownish; fore metatarsus about 7-8 as long as the tibia; middle tibiæ without setæ on the flexor surface; hind tibiæ each with 2 ranges of setæ on extensor surface; hind metatarsus about .7 as long as the remaining joints taken together. Wing yellowish gray hyaline, with 2 large dark brown spots; branches of cubitus distinctly divergent (Fig. 198). Halteres yellow. Eastport, Maine, (C.W.J.), July.

13. *Mycetophila monochacta* Loew.

Berl. Ent. Zeitschr. XIII. 158. 1869.

Male and female. Length 2.7-3 mm. Head fuscous black, opaque, mouth parts subfuscous, scape chiefly yellow, flagellum fuscous black, the base yellowish. Thorax and abdomen fuscous black, mesonotum opaque, sides pollinose, humeri sometimes yellowish; genitalia pale. Coxæ and legs pale yellow; middle tibiæ each with one setæ on flexor surface; hind metatarsus subequal in length to the remaining joints taken together. Wing cinereous with a central spot and a short preapical fascia "D. C."

14. *Mycetophila fenestrata* Coquillett.

An examination of the type in the National Museum shows that this species is a member of the genus *Mycothera*. See page 83 for the description.

15. *Mycetophila quatuornotata* Loew.

Berlin. Ent. Zeitschr. XIII. 157. 1869.

Female. Length 4.2 mm. Head dusky yellow, front largely fuscous; antennæ fuscous black, scape and base of flagellum

yellow. Mesonotum yellowish with 3 broad black vittæ dilated anteriorly; hairs yellowish, setæ black; pleura and metanotum fuscous black; scutellum yellow, lateral angles blackish. Abdomen fuscous black, moderately shining, the last segment except the base, the posterior margins of the remaining segments, a median stripe on segment 2 and the bases of 3 and 4 yellow; lamellæ of the ovipositor ochraceous. Coxæ and legs pale yellow, tips of posterior femora black, flexor surface of each middle tibia with a single setæ; hind metatarsus shorter than joints 2, 3 and 4 taken together. Central wing spot large; preapical spot fills out the apex of cell R_1 from tip of vein R_1 and reaches Cu_1 interrupted over cell M_1; a more or less distinct gray cloud behind the cubitus opposite the central spot. "Maryland;" Hemlock Falls, N. J. June.

16. *Mycetophila nodulosa* Williston.

Trans. Ent. Soc. London. 264. 1896.

Male. Length 2.5 mm. Antennæ brownish-yellow, the basal joints yellow; longer than the head and thorax together. Front and face light ochraceous yellow; palpi brown. Mesonotum light ochraceous yellow, lightly white pruinose on the sides, and with blackish and yellow hair; pleura brownish-yellow. Abdomen reddish-brown; pubescence chiefly black. Legs yellow, the coxæ and femora light yellow, the broad hind femora at the tip brown. Front tibiæ about 1-3 of the length of the tarsi and shorter than the metatarsi; middle tibiæ with spines on the inner side; hind tibiæ with 2 rows of spines on the outer side. Wings lightly tinged, the outer part of the first section of the media, the crossvein and the base of the second section of Rs thickened, forming a straight spindle-shaped mass. "St. Vincent Isl."

17. *Mycetophila dolosa* Williston.

Trans. Ent. Soc. London. 264. 1896.

Male. Length 2.5-3 mm. Antennæ brown, somewhat compressed, the basal joints yellowish. Front and face brown, mesonotum dark brown, opaque, with a thin yellowish sheen in some reflections. Abdomen dark brown or black, the venter yellow. Pleura yellowish-brown. Coxæ and legs light yellow, the tarsi appearing blackish from the hair; front tibiæ less than

half of the length of the tarsi and a little longer than the metatarsi; hind tibiæ with 2 rows of spines on the outer side: middle tibiæ with spines on the inner side; hind metatarsi nearly as long as the following joints together. Wings tinged with brownish. "St. Vincent Isl."

Mr. William R. Thompson who kindly examined the co-type ♂ specimens in the St. Vincent collection at Cornell University writes ".....The specimen bearing the label has one seta on the flexor surface of the middle tibia ..... The second specimen placed beside the first has the tarsus of the first leg practically equal to (only very slightly longer than) the tibia of that leg; it has 2 sètæ on the flexor side of the middle tibia"

18. *Mycetophila vitrea* Coquillett.

Length 2.5 mm. Black, the face, mouth parts, bases of antennæ, halteres and legs, yellow, apices of tarsi brown. Body polished, the hairs yellowish, bristles black. Middle tibiæ each bearing a very long and a short bristle on the inner side. Wing hyaline, tinged with yellowish and gray along the costa, cubitus forks opposite the crossvein. "N. J., B. C."

This species and *M. anomala* resemble *Epicypta* in general appearance and in venation.

19. *Mycetophila anomala* n. sp.

Male and female. Length 3 mm. Head, thorax and abdomen brownish black, shining, venter sometimes narrowly yellowish. Scape, palpi, coxæ, legs, halteres and hypopygium (Fig. 77) yellow; flagellum, tips of hind femora and tarsi brownish; tibiæ each with 2 setæ on flexor surface. Wings grayish yellow hyaline; fork of cubitus proximad of the base of the crossvein (Fig. 199). Halteres yellow. Price Co., Wis. (W.M.W.) August.

20. *Mycetophila incipiens* Williston.

Trans. Ent. Soc. London. 264. 1896.

Female. Length 2.5 mm. Antennæ about as long as the thorax, yellow; brownish toward the end; front and face yellow. Mesonotum yellowish-red. Abdomen reddish-yellow; each segment broadly brown on its posterior part. Legs, including the coxæ light yellow; front tibiæ about 1-3 of the

length of the tarsi and shorter than the metatarsi; middle tibiæ with 2 large and one small bristle on the inner side; middle and hind tibiæ with spines on the outer side; hind metatarsi distinctly shorter than the remaining joints of the tarsi together. Wings tinged with yellowish; a small brownish cloud on the basal section of the radial sector. "St. Vincent Isl."

21. *Mycetophila bipunctata* Loew.

Berlin. Ent. Zeitschr. XIII. 152. 1869.

Female. Length 2.4 mm. Head fuscous, opaque, face and mouth parts pale yellowish; scape and sometimes base of flagellum, yellow; flagellum blackish. Thorax fuscous black, humeri luteous; scutellum and abdomen fuscous black, the extreme tip of the latter and the venter, yellow. Coxæ and legs pale yellow, tips of hind femora fuscous, tarsi subfuscous; middle tibiæ each with 2 setæ on flexor surface; hind metatarsus about equal in length to the remaining 4 joints taken together. Wing with a small central spot. "Wis." There are 2 ranges of setæ on the extensor surface of the hind tibiæ in the type specimen.

Male and female. The female as above, the male like the female but the middle tibia usually bears a small setæ above the larger ones on the flexor surface and the humeri and venter are usually not much paler than the other parts; hypopygium (Fig. 78).

Orono, Maine, Nov.; Ithaca, N. Y., June-Aug.; N. J., Wis., Wyo., (W.M.W.), Sept.

22. *Mycetophila inculta* Loew.

Berlin. Ent. Zeitschr. XIII. 153, 1869.

Female. Length 3.7 mm. Head brown, face and mouth parts luteous, antennæ brownish, scape and the very base of the flagellum luteous. Mesonotum brown, shining, hairs appressed, yellowish; setæ black; pleura fuscous; scutellum dark brown with a median luteous spot. Abdomen fuscous or blackish, each segment except the first yellow margined, dilated into triangles on the sides; anal lobes brownish at the base, ochraceous apically. Coxæ and legs yellowish, tips of hind femora blackish, tarsi subfuscous, hind metatarsus about equal in length

to the 3 following joints taken together; middle tibiæ each with 2 setæ on flexor surface. Wing with a central spot, apex of wing posteriorly more grayish. "Middle States."

Male and female. The female as above though the humeri are more yellowish. The male differs in having less yellow on the abdomen and the middle tibiæ each with 3 setæ on the flexor surface. Hypopygium (Fig. 79). Chicago, Ill., (W.M.W.), May; Ithaca, N. Y., May-Aug.; R. I. (J.B.); Wis., (W.M.W.).

23. *Mycetophila scalaris* Loew.

Berl. Ent. Zeitschr. XIII. 154. 1869.

Male and female. Length 3 mm. Head luteous, antennæ subfuscous, scape and the base of the flagellum yellowish. Mesonotum yellowish, moderately shining, with 3 dark, sometimes confluent stripes; hairs yellow, setæ black; scutellum yellow, lateral angles black; anterior part of pleura yellow, posterior part and the metanotum fuscous. First abdominal segment yellow, margin dusky, sometimes with median yellow line, segments 2, 3 and 4 each with a large blackish spot on each side which rarely may meet on the dorsum; segments 5 and 6 with yellow hind margin, apex of abdomen and venter yellowish. Coxæ and legs yellow, hind femora with black tips, tarsi subfuscous, middle tibia with 3 setæ on flexor surface; hind metatarsus about as long as the remaining joints taken together. Wing with a central spot and a preapical fascia which fills the apex of cell R and extending obliquely proximad into cell Rs, below this the veins of the media are indistinctly surrounded by a grayish cloud. "Middle States." The robust hind tibiæ each have 2 ranges of setæ on the extensor surface; hypopygium (Fig. 80). The hypopygium of Var. a. differs in being more elongate (Fig. 82). Reared from *Boletus* and *Polyporus* Ithaca, N. Y., June-Oct.; Lawrence, Kas., (E.S.T.) July; Brookside, N. J., Selkirk Mts., B. C. (J.C.B.); Vt., (C.W.J.) Woods Hole, Mass.; Wis., (W.M.W.).

24. *Mycetophila pinguis* Loew.

Berlin. Ent. Zeitschr. XIII. 153. 1869.

Female. Length 4 mm. Front brownish, antennæ subfuscous, scape and the very base of the flagellum yellowish.

Thorax ochraceous, shining, mesonotum with 3 confluent stripes, hairs yellow, blackish on the dark stripes, setæ black; pleura in part fuscous. First abdominal segment wholly fuscous black, the remaining segments fuscous black each margined anteriorly and posteriorly with yellow, venter yellowish tinged. Coxæ and legs yellowish, hind femora with black tips; middle tibiæ each with 3 setæ on flexor surface, fore tarsi moderately thickened, hind metatarsus about as long as the 3 following joints taken together. Wing with central spot and a preapical fascia which fills the apex of cell R_1 and extends into cell Rs beyond this are 2 small very indistinct clouds, one on each branch of the media. "English River;" "Maine;" Wis. (W.M.W.) July.

25. *Mycetophila foecunda* n. sp.

Male and female. Length 3 mm. Head, thorax and abdomen shining fuscous black, the scape, palpi, humeri and lateral posterior margins of mesonotum narrowly, small spot on apex of scutellum and very narrow hind margin of intermediate abdominal segment, yellow; hypopygium long, with acute forceps (Fig. 81). Coxæ and legs yellow, bases of hind coxæ, a spot under middle and hind femora, the tips of the middle femora, the apical 1-4 of each hind femur, dark brown, tarsi brownish; fore metatarsus less than 7-8 of tibia; middle tibiæ each with 3 or 4 setæ on flexor surface, hind metatarsus nearly .8 as long as the 4 remaining joints taken together, fore tarsi of female swollen below. Wing hyaline, with a central spot, a faint cloud behind the fork of the cubitus, and a preapical fascia which fills the apex of cell R_1 and extends to Cu_1 though broken and very faint beyond M_1 (Fig. 200). Halteres yellow. In some specimens the coxæ and under side of the femora are not marked and the preapical wing cloud obsolete beyond M_1. Juliaette, Id., (J.M.A.); Orono, Me., Ithaca, N. Y.! (Nov.). Reared from *Polyporus* sp.

26. *Mycetophila imitator* n. sp.

Male and female. Length 3 mm. Similar to *M. foecunda* but differs in being subopaque, in lacking the abdominal fasciæ and in the structure of the hypopygium. Head, thorax, and abdomen black, subopaque, palpi, scape and small humeral spot yellowish; hypopygium short (Fig. 91). Coxæ and legs

yellow, tips of hind femora and of hind tibiæ blackish, spot on under side of hind femora near base, and tarsi brownish; fore metatarsus nearly .75 as long as its tibia; middle tibiæ each with 3, rarely 2, setæ on flexor surface, hind tibiæ each with 2 ranges of setæ on extensor surface; hind metatarsus nearly .8 as long as the remaining joints taken together. Wings grayish hyaline with central spot and preapical fascia which reaches hind margin, narrowest on cell M_1 (Fig. 201). Halteres yellow. Ithaca, N. Y.! and Orono, Me. Nov.

27. *Mycetophila perlonga* n. sp.

Male. Length 5.5 mm. Head dusky reddish yellow, front and antennæ dark brown, scape and palpi yellow. Thorax dusky reddish yellow, mesonotum with 2 wide dark brown stripes; pleura and metanotum dark brown. Abdomen dark brown, paler at the incisures; hypopygium (Fig. 83). Coxæ and legs yellow, tips of hind femora black; fore metatarsus about 7-8 as long as the tibia; middle tibiæ each with 3 or 4 setæ on flexor surface; hind tibia each with 2 ranges of setæ on the extensor surface. Wing yellowish gray hyaline, costal cell more yellow, central spot and large preapical fascia dark brown, posterior apical margin tinged with brown (Fig. 202). Halteres yellow. N. Y. August.

28. *Mycetophila polita* Loew.

Berlin. Ent. Zeitschr. XIII. 158. 1869.

Male. Length 2.5 mm. Head black, face and mouth parts luteous; antennæ fuscous black, scape and base of flagellum yellowish. Thorax shining black, humeri and the tips of the posterior lateral angles of the mesonotum luteous. Abdomen shining black, segments 5 and 6 each with yellow basal fascia; hypopygium luteous, minute. Coxæ and legs pale yellow, extensor surface and tip of each hind femur black; middle tibiæ each with 3 setæ on flexor surface. Wing with small central spot and a preapical fascia which arises on the costa before the tip of R_1 and reaches M_1; directly opposite this the veins M_3 and M_4 are gray clouded. "N. Y." There are 2 ranges of setæ on the extensor surface of each hind tibia in the type specimen.

A female specimen from Ithaca, N. Y., does not differ. The humeri are widely yellow.

29. *Mycetophila fallax*. Loew.

Berl. Ent. Zeitschr. XIII. 156. 1869.

Male. Length 3 mm. Fuscous black, subopaque, humeri, scutellum except the angles and the hind margin of each abdominal segment pale; thoracic hairs pale, setæ black. Middle tibiæ each with 3 setæ on the flexor surface. Wing with a central spot, and a preapical arcuate fascia which extends from the tip of cell R_1 to vein M_1, the spots being larger and darker than in *M. trichonota*, and R_1 ends nearer the apex of the wing. "Middle States." The hind tibiæ each have 2 ranges of setæ on the extensor surface in the type specimen.

Var. a. Female. Length 3.7 mm. Thorax dark brown, humeral spot large; middle tibiæ each with 4 setæ; preapical wing fascia followed by a pale brown spot on each of M_1 and M_2, thus making an interrupted fascia extending beyond M_2. This specimen may represent a distinct species. Stanford Univ., Cal., March.

30. *Mycetophila pectita* n. sp.

Male. Length 3.5 mm. Head and antennæ brown, scape, base of flagellum and palpi yellow. Thorax subopaque dusky yellow, the 3 subconfluent stripes of mesonotum, sides of scutellum, posterior parts of pleura and the metanotum brown, hairs pale, setæ dark. Abdomen dark brown, hypopygium (Fig. 84). Coxæ and legs yellow, tips of hind femora and tarsi brown; fore metatarsus about .85 as long as the tibia, middle tibiæ each with 3 setæ on flexor surface, hind tibiæ each with 2 ranges on extensor surface. Wing yellowish hyaline, with central spot, and oblique preapical fascia distinct to the middle of cell Rs beyond which it is very faint apparently reaching M_2 (Fig. 203). Halteres yellow. Selkirk Mts., B. C.! (J.C.B.) and Friday Harbor, Wash. (J.M.A.).

31. *Mycetophila lassata* n. sp.

Male. Length 3.5 mm. Similar to *M. pectita* in coloring and structure, but differs in having the preapical wing cloud produced covering the posterior apical margin of the wing (Fig. 204); and in the form of the hypopygium (Fig. 85). Felton, Cal. (J.C.B.) May.

32. *Mycetophila lenta* n. sp.

Male. Length 3.5 mm. Similar to *M. pectita* but differs in having the mesonotum subshining, and in the form of the hypopygium (Fig. 86). The thorax of the Maine specimen is blackish with the humeri broadly yellow and with spots on posterior angles of mesonotum, a spot in front of the scutellum and the center of the scutellum, yellow; wing as figured (Fig. 205). Price Co., Wis. (W.M.W.) Aug.; Orono, Maine! Oct., (Bred from Mushrooms); N. C.

33. *Mycetophila propinqua* Walker.

List of Diptera, Brit. Mus. I. 96. 1848.

Length 4 mm. Head tawny, very thickly clothed with yellow hairs; palpi tawny; eyes black; feelers tawny, brown towards the tips; chest reddish tawny, with a short brown stripe on each side; hind chest pale tawny; its three reddish lobes covered with a white bloom; abdomen reddish brown, clothed with yellow hairs; hind borders of the segments tawny; legs yellow; tips of the thighs tawny; shanks darker than the thighs; feet brown, tawny toward the base; wings pale tawny especially towards the fore border, and adorned with two brown bands, of which the one nearest the wing tip is continued along the fore border of the wing to the tip, and is a little broader, but hardly longer or more irregular than the other; veins tawny; poisers yellow. "Nova Scotia."

A female specimen from N. Y. which appears to be this species has 2 setæ on flexor surface of each middle tibia and 2 ranges on extensor surface of each hind tibia.

34. *Mycetophila sigmoides* Loew.

Berlin. Ent. Zeitschr. XIII. 156. 1869.

Male. Length 4 mm. Head yellowish, front darker, antennæ fuscous black, the scape and the very base of the flagellum yellowish. Thorax yellowish moderately shining, mesonotum with 3 fuscous vittæ; hairs yellowish, setæ black; scutellum yellow, lateral angles fuscous, setæ black; pleura with fuscous, metanotum wholly fuscous. Abdomen yellowish, the segments with fuscous markings, hypopygium small, yellow. Coxæ and legs pale yellow; all femora with an oblong dark spot below.

near the base, apex of each hind femur black; middle tibiæ each with 2 or 3 setæ on flexor surface; tibial spurs whitish distinctly tipped with black; tarsi dusky; hind metatarsus about as long as the 3 following joints taken together. Wing with central spot with a preapical fascia formed of 3 fuscous spots arranged like the letter S, the first and largest extends from the apex of cell R_1 to vein M_1. "Middle States."

There are 2 ranges of setæ on the extensor surface of the hind tibiæ in the type specimen.

35. *Mycetophila fatua* n. sp.

Male. Length 4.5 mm. Head and antennæ brown, the scape, palpi and very base of flagellum yellow. Thorax dull yellowish, mesonotum with 3 subconfluent dull dark brown vittæ, pleura, metanotum and sides of scutellum brown, setæ black. Abdomen dark brown, the intermediate segments with yellow hind margins; hypopygium (Fig. 87). Coxæ and legs yellowish, the central portion of the coxæ, flexor surface of the femora near the base, tips of hind femora and of tibiæ and the apical part of the tarsi, brown, fore metatarsus about 7-8 as long as the tibia; middle tibiæ each with 2 setæ on flexor surface; hind tibiæ each with 2 ranges on extensor surface; hind metatarsus 7-8 as long as the 4 remaining joints. Wings grayish hyaline, costal cell yellowish; with central spot, a large brown preapical more or less interrupted fascia, a faint cloud at apex of the wing and another behind the fork of the cubitus (Fig. 206). Halteres yellow. Moscow, Idaho (J.M.A.).

Female. Similar, but thorax a little paler brown, and the preapical wing fascia more broadly interrupted in cell M_1. Vollmer, Idaho.

36. *Mycetophila edura* n. sp.

Male. Length 2.5 mm. Head and antennæ grayish brown, the palpi, scape and base of flagellum yellow. Thorax and abdomen dark brown, subopaque, the humeri and the narrow posterior angles of the mesonotum yellow, hairs yellow, setæ black; hypopygium (Fig. 88). Coxæ and legs yellow, the extensor surface of the hind femora and the tarsi brownish; fore metatarsus about .8 of tibia in length, middle tibiæ each with 2 setæ on flexor surface, hind tibiæ each with 2 ranges of setæ on extensor surface, hind metatarsus about 1-16 shorter than

the 4 remaining joints. Wings grayish hyaline with central spot and a preapical spot which reaches from apex of Rs to proximad of tip of R_5, transversely not quite reaching M_1 (Fig. 207). Halteres yellow. Ithaca, N. Y.!

Female. A single specimen from Price Co., Wis. (W.M.W.) differs in having the dorsum of the thorax and base of the abdomen paler brown.

37. *Mycetophila exusta* n. sp.

Male. Length 3 mm. Head and antennæ brown, palpi, scape and base of flagellum yellow. Thorax brown, humeri yellow. Abdomen dark brown, hypopygium (Fig. 89). Coxæ and legs yellow, tarsi darker, fore metatarsus about .8 as long as the tibia; middle tibiæ each with 2 setæ on flexor surface; hind tibiæ each with 2 ranges of setæ on extensor surface. Wings grayish hyaline with central spot and an elongate brown diffuse preapical spot longitudinal in position extending from tip of Rs to proximad of tip of R_5; apical third of wing grayish with an oval hyaline spot below Rs (Fig. 208). Halteres yellow. Mass., June; Id., (J.M.A.) Sept., Cal.! (J.C.B.) May, Nov.

This species is very similar to *Mycothera fenestrata* in wing markings.

38. *Mycetophila jugata* n. sp.

Male. Length 3 mm. Head and antennæ grayish brown, palpi, scape and base of first flagellar joint reddish yellow. Thorax reddish yellow, the 3 wide vittæ of mesonotum, the pleura, and metanotum dark reddish brown, hairs yellow, setæ black. Abdomen dark brown, hairs yellow, appressed, hypopygium (Fig. 90). Coxæ and legs yellow, tips of hind femora blackish, tarsi dusky; fore metatarsus about .8 as long as the tibia; middle tibiæ each with 2 setæ on flexor surface, hind tibiæ each with 2 ranges of setæ on extensor surface; hind metatarsus subequal in length to the 4 following joints taken together. Wings grayish hyaline with a large brown central spot, a large paler cloud opposite this behind the cubitus, a preapical fascia which extends from the costa to the hind margin of the wing where it is paler, constricted in the middle (Fig. 209). Halteres yellow. Felton, Calif. (J.C.B.).

39. *Mycetophila extenta* n. sp.

Male and female. Length 3.5 mm. Head, antennæ, thorax, and abdomen subshining fuscous, the scape, base of flagellum, palpi, humeri, center of scutellum and the hind angles of the mesonotum narrowly dusky yellowish; hairs pale, thoracic setæ black; hypopygium (Fig. 92). Coxæ and legs yellow, tips of hind femora black, tarsi dusky; fore metatarsus about 7-8 as long as the tibia; middle tibiæ each with 2 setæ on flexor surface; hind tibiæ each with 2 ranges of setæ on extensor surface; hind metatarsus nearly .8 as long as the 4 following joints taken together. Wing grayish hyaline, with central spot and a preapical arcuate fascia which extends from the tip of Rs to M_2, narrowest in cell M_1 (Fig. 210). Halteres yellow. Ithaca, N. Y. April.

40. *Mycetophila* n. sp.

Female. Length 3.5 mm. Similar to the foregoing, but thorax more shining, the paler parts lighter yellow, no yellow spot on the scutellum, venter yellowish, and fore tarsi more distinctly swollen. N. Y., August.

41. *Mycetophila edentula* n. sp.

Male. Length 2.7 mm. Head, antennæ, thorax and abdomen fuscous, the scape, base of flagellum, palpi, small spot on humerus, dusky yellow; hypopygium (Fig. 93). Hairs pale, setæ black. Legs and fore coxæ yellow, middle and hind coxæ fuscous outwardly, fore metatarsus less than .8 as long as the tibia; middle tibiæ each with 2 setæ on flexor surface; hind tibiæ each with 2 ranges of setæ on extensor surface, hind metatarsus about 1-16 shorter than the following 4 joints taken together. Wing grayish hyaline, with central spot, a preapical fascia which fills apex of cell R_1 arising proximad of tip of vein R_1 and extends transversely slightly beyond vein M_1; apex of wing margined with gray (Fig. 211). Halteres yellow. Selkirk Mts., Rogers pass, B. C.! (J.C.B.) July.

Female. Fore coxæ brown, otherwise as above. Hampton, N. H., (S. A. Shaw), Oct.

42. *Mycetophila trichonota* Loew.

Berlin. Ent. Zeitschr. XIII. 155. 1869.

Male. Length 2.8 mm. Head fuscous, opaque, face, mouth parts, scape and base of flagellum yellowish, antennæ fuscous

black. Thorax fuscous black, subopaque, humeri, posterior angles, spot in front of scutellum, and the scutellum except the sides, luteous; hairs yellow, setæ black. Abdomen fuscous black, the lateral and posterior margins of each segment except the first yellowish; the small hypopygium yellow. Coxæ and legs pale yellow, tips of hind femora black; middle tibiæ each with 2 setæ on flexor surface, hind metatarsus about equal to the following 4 joints taken together; tarsi more or less dusky. Wing with rather large central spot and a preapical fascia which extends from the tip of the cell R obliquely proximad into cell Rs but not reaching vein M_1; below this fascia the veins M_1 and M_2 are clouded with gray. "D. C." There are 2 ranges of setæ on the extensor surface of each hind tibiæ in the type specimen.

Var. a. Male. Thorax subshining dark brown, scutellum wholly brown, fore tarsi slightly swollen, otherwise as above; hypopygium (Fig. 94). Ithaca, N. Y., July, August.

43. *Mycetophila socia* n. sp.

Male and female. Length 3 mm. Thorax and abdomen subshining brownish black, humeri, posterior angles of mesonotum and narrow hind margins of the segments of the abdomen yellow; hypopygium (Fig. 95). Fore metatarsus about 7-8 as long as the tibia; fore tarsi not swollen. Wing with brown central spot and an oval grayish preapical spot (Fig. 212). Otherwise as in *M. trichonota*. Ithaca, N. Y., August.

44. *Mycetophila discoidea* Say.

Journal Ac. Sc. Phil. VI. 153, 1829.

Thorax pale with a blackish disk, wings with a fuscous spot. Head blackish, antennæ whitish, at tip blackish; thorax pale honey-yellow, disk blackish owing to 3 vittæ of that color being confluent into one, wings hyaline, with a fuscous spot on the connecting nervures; tergum blackish, somewhat sericeous; poisers whitish; feet whitish, with blackish tarsi; abdomen whitish at base. Length more than 1-10 inch. Belongs to Meigen's first division of the genus. Indiana.

45. *Mycetophila ichneumonea* Say.

Journal Ac. Sc. Phil. III. 16. 1823.

Female. Length 3 mm. Clay yellow, abdomen brown dorsally. Belongs to Meigen's first division. Antennæ paler, head more dusky clay yellow. Mesonotum more dusky, pleura paler clay yellow. Segments

2 to 4 of abdomen, brown above. Wing yellowish, crossveins broadly margined with brown. Legs pale clay yellow, tarsi brownish. "Pa."

46. *Mycetophila bifasciata* Walker.

List. of Dipt. I. 96. 1848.

Head and chest black, clothed with short tawny down; eyes and feelers black, the latter ferruginous at the base; scutcheon ferruginous; abdomen brownish black; hind borders of the segments tawny; feet, thighs at the base and at the tips, and tips of the hind hips, brown; wings somewhat gray, clouded with brown below the fore border about the middle and near the tip, which is also indistinctly clouded with gray; veins brown; poisers tawny. Length of the body 5mm. St. Martin's Falls, Albany River, Hudson's Bay.

47. *Mycetophila parva* Walker.

List. of Dipt. I. 97. 1848.

Head brown; eyes black, palpi tawny; feelers brown; yellow at the base; chest reddish brown, varied with tawny on each side; breast yellow; abdomen reddish brown; hips and thighs yellow, tips of the latter brown; shanks dull tawny; feet brown; wings slightly gray, with two brown spots beneath the fore border; the one nearest the tip of the wing is larger and more irregular than the other; veins brown, poisers yellow. Length of the body 2.5 mm. St. Martin's Falls, Albany River, Hudson's Bay.

48. *Mycetophila laeta* Walker.

List. of Dipt. I. 97. 1848.

Body thickly clothed with yellow hairs; head brown; eyes black; palpi tawny; feelers dull tawny yellow at the base; chest bright tawny; its hind part pale reddish brown and varied with yellow; abdomen reddish brown, with five yellow bands along the sutures of the segments; hips and thighs pale yellow; tips of hind thighs brown; shanks pale tawny; feet brown, wings slightly tawny, especially towards the fore border, and adorned with two brown bands of which the one nearest to the wing tip is much larger and more irregular than the others. Veins tawny; poisers white. Length of body 3.5 mm. Nova Scotia.

49. *Mycetophila contigua* Walker.

List. of Dipt. I. 96. 1848.

Body clothed with short yellow hairs; head tawny; eyes black, palpi tawny; feelers brown, tawny at base; chest reddish brown, yellow on each side in front. Abdomen reddish brown; hind border of each segment pale yellow; legs pale yellow; tips of hind thighs brown; feet and tips of shanks dull tawny; wings pale tawny adorned with two brown bands, of which the one nearest to the wing tip is much longer and more irregular than the other; veins dark tawny; poisers bright tawny. Length of the body 3 mm. Nova Scotia.

50. *Mycetophila plebeia* Walker.

List of Dipt. I. 100. 1848.

Head black; palpi tawny; feelers black, yellow at the base; chest tawny with three broad black stripes which occupy nearly all the back and are united behind; the middle one is much in advance of the other two; abdomen wanting; hips and thighs pale yellow; shanks dull pale tawny; feet brown; wings slightly gray; veins brown; poisers yellow. Length of body 3.5 mm. St. Martin's Falls, Albany River, Hudson's Bay.

51. *Mycetophila obscura* Walker.

List of Dipt. I. 101. 1848.

Body brown; head yellow beneath; eyes black; palpi yellow; feelers brown, yellow at the base; chest with a tawny stripe forked in front on its hinder part; scutcheon and breast yellow; abdominal segments yellow at the base; legs yellow; hips very pale yellow; feet dull yellow; wings colourless; veins brown; poisers yellow. Length of the body 3 mm. St. Martin's Falls, Albany River, Hudson's Bay.

52. *Mycetophila despecta* Walker.

List of Dipt. I. 101. 1848.

Head and palpi brown; eyes black; feelers brown, yellow at the base; chest ferruginous, reddish brown on the disk; abdomen brown; ventral segments and hind borders of dorsal segments ferruginous; legs yellow; feet brown; wings colourless; veins tawny; poisers yellow. Length of body 3 mm. St. Martin's Falls, Albany River, Hudson's Bay.

53. *Mycetophila nubila* Say.

Journal Ac. Sc. Phil. VI. 153. 1829.

Dusky; wings immaculate; feet whitish. Inhabits Indiana. Body dusky, brownish; antennæ first and second joints yellowish; wings hyaline; immaculate; poisers whitish, capitulum dusky before the tip; abdomen slender, gradually enlarging to the tip; tergum with the tips of the segments pale; anal segments pale; feet whitish, dusky towards the tips; spines 1-3 the length of the first tarsal joint. Length 3-20 inch. Belongs to Meigens 5th Division.

54. *Mycetophila sericea* Say.

Long's Exped. App. 365. 1824.

Male and female. Length over 4 mm. Scape yellow, flagellum brown; palpi yellow. Head blackish with yellowish sheen. Pleura yellowish, mesonotum fuscous with whitish silky sheen. Abdomen deep brown, posterior margins of the segments yellow broadened at the sides in the form of triangular spots. Wing slightly yellowish with brown veins. Course of veins as in Plate 9, Fig. 18, in Meigen's Syst. Beschr. I. Halteres and legs pale yellowish with brown tarsi and spurs. "N. W. Terr." Perhaps *Allodia*.

32. Genus *Sceptonia* Winnertz.

Verh. Zool.-bot. Ges. Wien. XIII. 1863.

Front broad, the anterior margin produced into a triangle the apex of which reaches the base of the antennæ; lateral ocelli contiguous to the eye margin, middle one minute, in a groove at the base of the triangle. Anterior margin of thorax produced over the head so that in profile making a continuous curve with the head. Legs strong, hind tibial setæ longer than the greatest diameter of the tibia. The branches of the radius curved parallel to the costa, the cells between very narrow, the costa therefore apparently produced beyond the tip of Rs; subcosta short; cubitus simple; anal long but incomplete. The larvæ are found in decaying wood and in fungi.

Sceptonia nigra Meigen.

Syst. Beschr. I. 270. 1818. (*Mycetophila*).

Male and female. Length 2.2-2.5 mm. Head, thorax and abdomen shining black. Antennæ brown, scape sometimes yellowish; palpi yellow. Hairs pale shimmering, setæ dark. Hypopygium yellowish (Fig. 96). Coxæ and legs yellowish, the bases of the hind coxæ, the apical third of the hind femora, black; spurs and tarsi brown; fore metatarsus a fourth shorter, the entire tarsus about 2.3 longer than the tibia; middle tibiæ each with a single minute seta on flexor surface. Wings hyaline tinged with yellowish brown, with dusky yellow veins. (Fig. 213). Halteres yellowish. In an occasional specimen the base of the venter is obscurely yellowish. Selkirk Mts., Dowie Creek and Rogers Pass, B. C. (J.C.B.) July; Wis., (W.M.W.); Brookline, Mass. (C.W.J.) June; Ithaca, N. Y., Aug.; Orono, Me., Nov.

33. Genus *Zygomyia* Winnertz.

Verh. Zool.-bot. Ges. Wien. XIII. 901. 1863.

Front broad, the anterior margin produced into a triangle which descends to the root of the antennæ; lateral ocelli contiguous to the eye margin, the middle one minute, placed in a groove at the base of the frontal triangle. Legs strong, tibiæ with strong setæ, those of the hind tibiæ longer than the greatest diameter of the tibia. Costa not produced, subcosta short, ending free; cubitus simple, anal vein incomplete. The larvæ live in decaying wood and in fungi.

Table of species.

a. Wing spotless. 1. *ignobilis.*
aa. Wings marked with brown central spot and preapical cloud.
b. Preapical fascia of wing distinctly crosses the media; length 2.5 mm. 2. *ornata.*
bb. Preapical cloud diffuse, its long axis parallel to the long axis of the wing; length 4 mm. 3. *varia.*

1. *Zygomyia ignobilis* Loew.

Berl. Ent. Zeitschr. XIII. 150. 1869.

Male and female. Length 2.5 mm. Fuscous, subopaque, pile pale, appressed, setæ black. Head black, antennæ brown, scape dusky yellow. Hypopygium yellowish (Fig. 97). Coxæ and legs yellow, hind margins and tips of hind femora brown to blackish; spurs and tarsi brown; middle tibiæ each with one small and one large seta on the flexor surface. Wings grayish hyaline (Fig. 214). Halteres yellow. "Middle States;" Ithaca, N. Y.

2. *Zygomyia ornata* Loew.

Berl. Ent. Zeitschr. XIII. 150. 1869.

Male and female. Length 2.2-2.5 mm. Head blackish, antennæ fuscous, scape, base of flagellum and palpi yellow; hairs pale. Thorax and abdomen fuscous, opaque, pile pale, setæ black; hypopygium yellowish (Fig. 98). Coxæ and legs yellow, tips of middle and hind femora and hind tibiæ, more or less dark brown, tarsi largely brown. Wing cinereous hyaline, yellowish toward the costa, a brown central spot, a preapical fascia, and a small less distinct spot behind the cubitus (Fig. 216). Halteres yellow. Wis.; Chicago, Ill., (W.M.W.) June, Aug.; Ithaca, N. Y., Aug.

3. *Zygomyia varia* Staeger.

Kröjer: Tidskr. 266. 1840. (*Mycetophila*).

Male and female. Length 3 mm. Head and antennæ brown, scape and palpi usually yellow. Thorax and abdomen brownish black subopaque; hypopygium reddish yellow; hypopygium dusky yellow; hairs brown with a yellowish tinge, appressed. Coxæ and legs reddish or rusty yellow, the tarsi and spurs, the tips of the hind femora, the extensor surface of the last and a spot

on the under side of the fore femur, brown; fore metatarsus about .88 as long, entire tarsus about 2.5 longer than the tibia. Wing more or less dusky yellow hyaline, with central spot and an elongate preapical cloud filling the apex of the cell R_1 and spreading out below it. Halteres yellow. "Europe." A female specimen 4 mm. long from Capens, Me. (C.W.J.), July.

THE SCIARINÆ.

(Exclusive of Arctic and Tropic species).

In the literature on economic entomology there are numerous references to members of this subfamily, though in but few instances were the species known.

Of the described North American species of *Sciara,* 16 are known to occur only in the Arctic region, 11 are from Mexico, the West Indies and Central America, and 32 are from the United States and Canada. Of the last only 15 are described in a recognizable manner. In view of our very imperfect knowledge of these gnats, an apology will be scarcely necessary for presenting this paper to economic entomologists. Though over 25 new species are described, it is very probable that they represent but a tithe of those which may eventually be found in the United States. It is quite possible that some of the species described here as new may be the same as some of those named by Say, Walker, or Fitch, but to attempt to link them is quite useless as only a comparison with the type specimens of these authors would lead to definite results. As far as I am aware, of these types, Walker's only are in existence.

The brief descriptions published by these authors are here reproduced for the sake of completeness. Some one else, possessing greater perspicacity than I, may have better fortune in identifying them with the species they are supposed to designate.

In my previous papers on the *Mycetophilidae* I have included the few arctic and tropic species described from North America but in the present treatment of the *Sciarinae* I deem it expedient to omit them, for none has been found in the material I have had the privilege of examining.

In studying these flies it was found that balsam mounts were far superior to pinned specimens. It is desirable to remove one wing and mount it under a separate cover glass, to insure its

lying perfectly flat. The hypopygium, unless it is turned sidewise, should also be cut off and separately mounted. A few color notes, describing palpi, halteres, thorax, and abdomen are necessary, but they may be quite brief, the description not necessarily occupying more space than is found upon a microscope slide label. In the descriptions which follow it must be borne in mind that the body length given refers to dried specimens, balsam mounts and alcoholic specimens being about a third longer. The same caution must be observed in interpreting antennal lengths relative to that of the body; in drying, the antennæ do not shrink proportionally to that of the body, or more particularly of the abdomen. In comparing dimensions, wing measurements, etc., of any specimen with the figures given it will be imperative to use a micrometer scale and not depend solely upon the eye to estimate proportions.

Characters of the subfamily. Distinguished from the *Mycetophilinae* by the shorter coxæ and by the wing venation the R-M crossvein being in the same right line with the second section of the radial sector, and the cubitus forking near the base of the wing.

In a recent paper (Archiv f. Naturgeschichte, 1911) Professor Enderlein proposes a new arrangement of the genera based upon what appear to be good grounds. He separates the *Mycetophilidæ* from the *Sciaridæ* upon the form of the eye. In the former the eye is oval, sometimes more or less emarginate, but not contiguous over the base of the antennæ. In the *Sciaridæ* the eye posesses a slender process which passes over the base of the antenna meeting or nearly meeting the process from the opposite eye, thus forming a yoke or bridge over the base of the scape. He divides the *Sciaridæ* into 2 subfamilies, the *Lycoriinæ* (*Sciarinæ*) and the *Lestremiinæ*, the latter heretofore having been considered a group under the *Cecidomyiidæ*. If this classification were adopted, of the following 10 genera, *Probolæus*, *Manota* and *Pnyxia* would find a place with the *Mycetophilinæ*, *Zygoneura* with *Lestremiinæ*, and the remaining genera with the *Sciarinæ*.

Table of North American Genera.

a. Proboscis longer than the thorax.

b. Wing venation defective, several veins detached at base. (See page 258 Part III) *Probolæus.*

bb. Wing venation complete, no detached veins. 1. *Eugnoriste.*
aa. Proboscis not greatly prolonged.
b. Wing venation defective, several veins detached at base. 2. *Manota.*
bb. Wings when present with complete venation, no detached veins.
c. Female wingless, in the male the media springs from the radius at an angle, the crossvein being obsolete (Fig. 264). 3. *Pnyxia* n. g.
cc. Both sexes with wings; crossvein present.
d. Wings very distinctly hairy; claws not denticulate. 4. *Trichosia.*
dd. Wings with microscopic setulæ but not hairy.
e. Antennal joints of the male pedicillate and with whorls of hair; forks of media arcuate. 5. *Zygoneura.*
ee. Antennal joints bare or with short hairs.
f. Forks of media arcuate, and claws toothed. 6. *Metangela.*
ff. Forks of media not arcuate, or if so, claws not toothed.
g. Claws toothed. 7. *Phorodonta.*
gg. Claws not toothed.
h. Face strongly produced. 8. *Rhynchosciara.*
hh. Face not produced. 9. *Sciara.*

1. Genus *Eugnoriste* Coquillett.

Proc. Wash. Ent. Soc. III, 321, 1896.

Head, small, antennæ filiform, pubescent, 16-jointed; proboscis rigid, filiform, directed downward and backward, longer than the head, palpi 4-jointed, the first joint very short; 3 ocelli; eyes deeply emarginate. Wings bare, venation like *Sciara* (Fig. 253). Entire insect Sciara-like in appearance except for the elongate proboscis. Structure of eyes as in *Sciara.*

Table of Species.

a. Proboscis longer than the head and thorax. 1. *occidentalis.*
aa. Proboscis slightly longer than the head, slender, horny. 2. *brevirostris.*

1. *Eugnoriste occidentalis* Coquillett.

Proc. Wash. Ent. Soc. III, 321, 1896.

Male and Female. Length 2.5 to 3 mm. Head and thorax black, subshining, antennæ, proboscis, palpi and halteres blackish brown, abdomen dark brown; coxæ and legs yellowish to brownish, tarsi darker; hypopygium (Fig. 138). Wings hya-

line, veins brown (Fig. 253). "Las Cruces, N. M." Moscow, Id., Manlius and Ithaca, N. Y.

2. *Eugnoriste brevirostris* Coquillett.

Proc. Wash. Ent. Soc. VI. 169, 1904.

Female. Length 3.5 mm. Black, the stems of the halteres yellow. Head narrow and elongate, about 3 times as long as wide, proboscis slightly longer than the head, slender, horny, over 6 times as long as wide. Wings grayish, apex of R_5 a short distance before the forking of the media. "Halfway House, Pike's Peak, Col." Sept.

2. Genus *Manota* Williston.

Dipt. of St. Vincent, W. I. 260, 1896.

Head flattened, placed rather high as regards the thorax; antennæ situated high up, 16-jointed. Three ocelli, in a gently curved line, laterals remote from the eye margin; palpi 3 jointed, elongate. Dorsum of thorax moderately convex, abdomen slender, flattened cylindrical. Coxæ elongate. Wings longer than the abdomen; Sc vestigial; R_5 ends before the middle of the wing; Rs not furcate; only apical parts of M_3 and M_4 present, bases and petiole of M wanting; costa far produced. *M. defecta* from the St. Vincent Isl. W. I. the only species.

In Enderlein's classification would be placed with the *Mycetophilinae*.

3 Genus *Puxia* n. gen.

Eye widely separate, ommatidia prominent, few in number, ocelli 3, in a triangle on the vertex; proboscis small, obscure; antennæ 16-jointed. Legs like *Sciara*, claws simple. Sexes dimorphic. Female wingless and without halteres, 40 ommatidia in each eye; palpus consist apparently of but one cup shaped joint. Male with halteres and wings, the latter of 2 sizes, the majority of the individuals possessing very short wings which do not reach the 4th abdominal segment (Fig. 262); the remaining individuals with longer wings which extend beyond the tip of the abdomen (Fig. 264); petiole of the media arises at the angle of the basal section of Rs, the cross-vein hence obliterated; palpus with truncated tip, 2 or 3 jointed; ommatidia 50 to 75 in each eye. Hypopygium of the simple *Sciarid* type. Type species *Puxia scabici* Hopkins.

This genus also would be placed with the *Mycetophilinae* in the classification of Enderlein.

Pnyxia scabiei Hopkins.

Proc. Ent. Soc. Wash. III, 152. 1895 (Epidapus).

Male. Length 1 to 1.5 mm. Antennæ 3-4 the length of the body with short hairs. Thorax and abdomen dusky; legs pale spurs short. Wings hyaline; venation similar in both the short and long winged forms (Figs. 262, 264). Hypopygium pubescent, claspers simple (Fig. 136). Halteres long, knob dark, pedicel pale at base.

Female. Length 1 to 2 mm. Color lighter than the male. Head dark, antennæ about as long as the head and thorax. Ovipositor like that of Sciara, terminal joint oval.

Dr. Hopkins reared this species in West Virginia from scabby and diseased potato tubers. He also observed the larvæ feeding on the healthy living tissue of the potato and states that they cause conditions which in one stage would be recognized as potato scab and in a more advanced stage be recognized as a form of potato rot.

Specimens of this species were submitted to me for examination by Professor H. A. Surface who stated that the larvæ were found in Pennsylvania injuring peony bulbs. I have also seen specimens from Rhinebeck, N. Y., and from Columbia, Mo., which were collected by Prof. C. R. Crosby in rubbish while sifting for spiders.

4. Genus *Trichosia* Winnertz.

Monogr. Sciarinen. 173, 1867.

In structural characters similar to the genus *Sciara,* but differs in having the wing surface distinctly hairy instead of microscopic setulose.

Trichosia hebes Loew.

Berlin. Ent. Zeitschr. XIII. 161. 1869.

Female. Length 2.9 mm., wing 2.6 mm. Black including head; face, palpi, and antennæ fuscous black, the base of the last paler. Mesonotum moderately shining, humeri yellowish.

Abdomen blackish, including lamellæ of ovipositor. Legs dusky yellowish, posterior tibiæ darker, tarsi fuscous black. Wings blackish, semihyaline, veins blackish; R$_5$ ends about opposite the base of cell M$_1$. Halteres black with yellow pedicel. "N. Y." Ithaca, N. Y. Also a single defective specimen which may belong here from Douglass Co., Kas. (E. S. Tucker).

5. Genus *Zygoneura* Meigen.

System. Beschr. VI. 304. 1830.

In structural characters similar to *Sciara* but differs in having both forks of the media strongly arcuate so that the cell between is wider near the base than further distad, widening again on the wing margin, in this respect resembling *Metangela* from which it differs in having simple tarsal claws and in the male with pedicellate antennal joints having whorls of hair.

Zygoneura flavicoxa n. sp.

Male. Length 1 mm. Head and thorax blackish brown, shining, abdomen brown, hypopygium darker brown; clasper (Fig. 99). Palpi yellow, antennæ brown, the petiole of each joint nearly as long as the distal part, total length of antenna about 1-3 greater than the body, the hairs brown. Coxæ and legs pale yellow, tarsi darker, hind tarsus less than 3-4, the metatarsus 3-8 as long as the tibia. Wing yellowish hyaline, veins yellowish brown; costa ends about 3-4 of the distance from Rs to M$_1$ (Fig. 254). Ithaca, N. Y.

6. Genus *Metangela* Rübsaamen.

Berlin. Ent. Zeitschr. XXXIX. 19. 1894.

In structural characters, including those of the wings and antennæ, similar to the genus *Sciara* but differs in having both forks of the media strongly arcuate so that the cell between is wider near the base than at a point near the tip, widening again on the wing margin. Tarsal claws toothed.

Metangela toxoneura Osten Sacken.

Proc. Ent. Soc. Phil. 165. 1862. (*Sciara*).

This species was later referred by Osten Sacken to *Zygoneura* in spite of its Sciara-like antennæ. Rübsaamen suggests that it belongs to *Metangela* though the original description of the

species does not mention the claws. I neglected to examine the type at Cambridge, Mass.

Male and female. Length 3 to 4 mm. Black, including antennæ, mouth and palpi; thorax shining, legs and fore coxæ yellowish; wings of the male subhyaline, of the female tinged with black. "D. C." Larvæ in cow dung.

7. Genus *Phorodonta* Coquillett.

Proc. U. S. Nat. Museum. XXXVII. 589. 1910.

Odontonyx, Rübs. Berlin. Ent. Zeitschr. XXXIX. 19. 1894.

Wings, proboscis, and antennæ as in *Sciara;* claws elongate and distinctly toothed.

Phorodonta niger Wiedemann.

Diptera exot. I. 44. 1821 (Sciara).

Male. Length 4.7 mm. Black; the antennæ alone in certain lights more grayish. "Ga., N. M., Mexico." *O. helveolus* Rübs. is a Porto Rican species.

8. Genus *Rhynchosciara* Rübsaamen.

Berlin. Ent. Zeitschr. XXXIX. 19. 1894.

Face produced snoutlike; proboscis with broad lamellæ; eyes, antennæ, and venation as in *Sciara.* Legs strong, claws simple, empodium and pulvillæ present. This genus occurs in Mexico.

9. Genus *Sciara* Meigen.

Illiger's Mag. II. 263, 1803.

Lycoria Meigen, Nouv. Class. 1800 (without type).

Head small; proboscis short; palpi 4-jointed, the first very short and not always distinctly differentiated from the second; antennæ 2+14-jointed; three ocelli, the laterals remote from the eye margin. Thorax moderately arched. Legs slender, tarsal claws not toothed. Wings microscopically setulose, not hairy (Figs. 218-252). Halteres present.

*Table of Species.**

a. Large southern species, 6 mm. or more in length; males undescribed.
b. R_1 ends distad of the base of the fork of M; wing blackish (Fig. 218). 1. *picea.*

* This table is based in part on male characters, only a few well-defined species represented by females alone are included. By wing length is meant the distance from the humeral crossvein to the tip of the wing, measured parallel to the longitudinal axis.

bb. R_1 ends about opposite the base of the fork of M. 2. *cingulata.*

aa. Medium or small species.

b. Costa, radius, media except sometimes the petiole, and cubitus of the wings distinctly though sparsely setose.

c. R_1 ends noticeably proximad of the fork of M; small species.

d. Petiole of the cubitus 1-8 as long as the basal section of M (Fig. 219); clasper (Fig. 100); N. Y. 3 *vicina* n. sp.

dd. Petiole of the cubitus over half as long as the basal section of M (Fig. 220); clasper (Fig. 101); Cal. 4. *dives* n. sp.

cc. R_1 ends about opposite or distad of the base of the fork of M; species 2.5 mm. or more in length.

d. Petiole of the cubitus over 1-2 as long as the basal section of M.

e. R_1 ends about opposite the forking of M (Fig. 221). 5. *futilis* n. sp.

ee. R_1 ends distad of the forking of M (Fig. 266). 6. *abdita* n. sp.

dd. Petiole of the cubitus less than 1-4 as long as the basal section of M.

e. Humeri, pleura in part and hypopygium (Fig. 103) more or less yellow; knob of halteres dark. 7. *ochrolabis*

ee. Thorax and abdomen, black.

f. Halteres and coxæ yellow; claspers (Fig. 139). 8. *habilis* n. sp.

ff. Halteres and coxæ black; claspers (Fig. 104). 9. *sciophila*

bb. Media and cubitus without setæ.

c. R_1 ends distad, or opposite (not more than 1-10 of wing length proximad) of the base of the fork of M, *and* base of Rs at or proximad of a point midway between the humeral crossvein and the tip of R_1.

d. Thorax yellowish to rufous, coxæ and femora dull yellow, claspers large, triangular (Fig. 111), hind tarsus 1-5 shorter than tibia. 10. *fulvicauda.*

dd. Thorax dusky, claspers of different structure.

e. Rs ends proximad of the tip of M_2; halteres dark.

f. Flagellar joints scarcely longer than broad; clasper with 2 median lobes (Fig. 109). 11. *tridentata.*

ff. Intermediate flagellar joints over twice as long as broad; clasper without median lobes (Fig. 105). 12. *munda* n. sp.

ee. Rs and M_2 end about equidistant from the base of the wing.

f. R_1 ends distad of the forking of M; halteres dark.

g. Mesal process of clasper robust (Fig. 106 m); wing (Fig. 225). 13. *dux* n. sp.

gg. Mesal process of claspers slender (Fig. 107 m); wing (Fig. 226). 14. *imitans* n. sp.

ff. R_1 ends about opposite the forking of M.

g. Apical tooth of clasper placed near the mesal margin of the apex (Fig. 115); species under 2.5 mm, halteres dusky yellow. 40. *varians*, var. c.

gg. Apical tooth of clasper placed at apex (Fig. 108) or tooth wanting (Fig. 123).

h. Halteres blackish; hind coxæ and legs brownish; claspers without apical tooth (Fig. 123); wing (Fig. 232). 23. *jucunda* n. sp.

hh. Halteres and coxæ yellowish; clasper with distinct apical tooth (Fig. 108).

i. Petiole of cubitus about .6 as long as the basal section of M (Fig. 227). 15. *prolifica*.

ii. Petiole of cubitus over .8 as long as the basal section of M.

j. Wing veins heavily shaded (Fig. 228). *prolifica*, var. a.

jj. Wing veins not shaded. *prolifica*, var b.

cc. R_1 ends at least 1-16 of the wing length proximad of the forking of M; the base of Rs is distad of the mid point between the humeral crossvein and the tip of R_1.

d. Fulvous mesonotum, abdomen more dusky; or reddish species.

e. Dusky red species, female 4 mm. long, halteres white, male not described. 16. *silvestrii*.

ee. Fulvous mesontum, abdomen more dusky; length 2 mm., or less.

f. Clasper without strong spines at apex (Fig. 110); tip of Rs far remote from apex of wing (Fig. 229). 17. *mellea* n. sp

ff. Clasper with one or more apical spines.

g. M_1 less than .8 as long as the petiole of the media. 18. *tritici*

gg. M_1 over .9 as long as the petiole of the media (Fig. 265). 48. *ocellaris*.

dd. Black or fuscous species.

e. Clasper with a mesal articulated process (Fig. 112); Rs ends far remote from apex of wing (Fig. 230). 19. *hastata* n. sp.

ee. Clasper without mesal articulated process.

f. Hypopygium near its base with a patch or tuft of setæ on the median ventral line (Figs. 117a, 123a 124); petiole of the cubitus under .6 as long as the basal section of M.

g. Clasper with a terminal tooth.

h. With about 10 setæ in the basal median ventral patch of the hypopygium (Fig. 117a). 20. *pauciseta*.

hh. With over 25 setæ in this patch (Fig. 124).
i. Abdomen variable dark ochreous, palpi yellowish, anterior veins dark ochreous.
21. *multiseta*.
ii. Abdomen variable dark brown; palpi brown, anterior veins nearly black. 22. *agraria*.
gg. Clasper without terminal tooth (Fig. 123); the hypopygium with the setæ of the ventral median patch arranged in a transverse line (Fig. 123a); halteres black. 23. *jucunda* n. sp.
ff. Hypopygium without a tuft of setæ on the median ventral line near the base.
g. Clasper with about 5 large subequal teeth or spines (Figs. 113, 119).
h. Tip of Rs about .10 of wing length proximad of tip of M_2 and ending proximad of .85 of wing length (Fig. 239); palpi and halteres dark; mesonotum shining black. 24. S. sp.
hh. Tip of Rs less remote from apex of wing; costa produced fully 3-4 of distance from tip of Rs to M_1; coxæ and halteres yellow.
25. *mutua* n. sp.
gg. Clasper of different structure.
h. Petiole of cubitus short, less than half as long as basal section of M.
i. Wing veins strongly marked; Rs ends distad of M_2; costa produced about 1-2 of distance from Rs to M_1; thorax shining.
j. Halteres and coxæ bright yellow.
35. *nigricans* n. sp.
jj. Halteres fuscous, (Figs. 217, 260).
36. *actuosa* n. sp.
ii. Costa produced over 1-2 distance from Rs to M_1, if not, then Rs ends proximad of tip of M_2.
j. Clasper with several apical teeth or spines.
k. Clasper short, curved, with several apical teeth (Fig. 114); R_1 ends at about 1-3 length of wing; Rs and M_2 end about equi-distant from base of wing (Fig. 234); halteres yellow. 26. *nacta* n. sp.
kk. Clasper with apical setæ or spines (Fig. 133, 261).
l. R_1 ends near middle of wing; costa produced over half way to M_1.
46. *coprophila*.
ll. R_1 ends noticeably proximad of the middle of the wing; costa produced scant half way from Rs to M_1 (Fig. 267).
32. *cucumeris* n. sp.

jj. Clasper without any, or with only a single prominent apical or subapical tooth besides the setæ; or if 2 or 3 smaller spines are present then tip of Rs is proximad of the tip of M_2.

k. R_1 ends only slightly proximad of the forking of M (Fig. 255); knob of halteres and coxæ brownish; clasper (Fig. 115). 40. *varians*, var c.

kk. R_1 ends far proximad of the forking of M.

l. Clasper subglobular.

m. Clasper subglobular, with the tooth subapical in position (Fig. 116); wing broad. 27. *S. sp.*

mm. Without subapical tooth. 28. *lugens* n. sp.

ll. Clasper more slender, wing narrow.

m. Halteres yellow; Rs ends far proximad of the tip of M_2 (Fig. 241). 30. *fatigans* n. sp. (See S. sp. p. 144).

mm. Halteres fuscous; Rs and M_2 end about equidistant from base of wing (Fig. 250). 44. *acuta* n. sp.

hh. Petiole of the cubitus at least half as long as the basal section of M.

i. Rs ends proximad of .85 of the length of the wing.

j. Clasper with 2 strong apical spines (Fig. 118); wing veins strongly defined (Fig. 238); thorax shining black. 29. *parilis* n. sp.

jj. Clasper and wing of different structure.

k. Costa produced less than 2-3 of distance from Rs to M_1.

l. Wing narrow (Fig. 240); hypopygium (Fig. 120). 31. *sativae* n. sp.

ll. Wing wider (Fig. 267); costa less produced; hypopygium (Fig. 261). 32. *cucumeris* n. sp

kk. Costa produced over 2-3 from Rs to M_1.

l. Clasper with 2 apical teeth (Fig. 121); petiole of cubitus about 3-4 as long as basal section of M; hind tarsus shorter than the tibia. 33. *S. sp.*

ll. Clasper with a median process (Fig. 122); petiole of the cubitus about half as long as the basal section of M (Fig. 242); hind tarsus and tibia subequal. 34. *neglecta* n. sp.

ii. Rs ends distad of .85 of wing length.

j. Clasper with one prominent terminal or subterminal spine or tooth, or if several teeth are present, one is conspicuously larger than the others.

k. Costa produced about 1-2 way from Rs to M_1.

l. Halteres bright yellow; claspers (Fig. 125); wing (Fig. 243).

35. *nigricans* n. sp.

ll. Halteres fuscous; wing (Fig. 217).

36. *actuosa* n. sp.

kk. Costa produced over 1-2 way from Rs to M_1.

l. Costa produced over 3-4 way from Rs to M_1. (Fig. 244); halteres yellow, claspers (Fig. 126). 37. *S. sp.*

ll. Costa produced less than .7 from Rs to M_1.

m. R_1 ends over 1-5 of wing length proximad of the forking of the media (Fig. 245); halteres dark; clasper (Fig. 127). 38. *dolens* n. sp.

mm. R_1 ends less than .15 of wing length proximad of forking of M.

n. Apex of clasper with a number of spines of which one is somewhat larger than the others (Fig. 132).

o. Halteres yellow; clasper (Fig. 132). 39. *diluta* n. sp.

oo. Halteres dark; clasper (Fig. 140). *diluta* var. a.

nn. Spine of apex of clasper distinctly differentiated from the apical setæ (Fig. 115); halteres yellow.

o. Costa produced less than 5-8 of distance from Rs to M_1.

p. Hind tibia a little shorter than the tarsus; wing (Fig. 246).

40. *varians* n. sp.

pp. Hind tibia and tarsus subequal in length.

varians var a.

oo. Costa produced over 2-3 of distance from Rs to M_1.

varians, var b.

jj. Clasper with 2 or more prominent apical teeth, spines, or with strong setæ.

k. Clasper with 2 or 3 apical or subapical spines; halteres black or brown.

l. Black species 3 mm. in length, with blackish legs, clasper subglobose (Fig. 128). 41. *scita* n. sp.

ll. Smaller species with yellow legs, clasper more slender.

m. Spines of clasper short (Fig. 129); pleura reddish. 42. *fumida* n. sp.

mm. Spines of clasper long (Fig. 130); pleura fuscous. 43. *trivialis* n. sp.

kk. Clasper with 5 or more apical and subapical setæ or spines.

l. Apex of clasper with 6 or 8 setæ of which one is somewhat set apart from the others (Fig. 137); halteres yellow; hind coxæ dark; wing (Fig. 252). 45. *impatiens* n. sp.

ll. Setæ of apex of clasper subequal in size.

m. Antennæ of male less than 3-4 length of body in dried specimens; coxæ yellowish. 46. *coprophila.*

mm. Antennæ of male over 3-4 of length of body in dried specimens; coxæ brownish, hind pair darker. 47. *caldaria.*

Females may usually be traced by means of the key but to do so it will be necessary to follow out several branches of the dichotomic divisions. The females of the species *pauciseta, multiseta, agraria, coprophila, caldaria,* and *varians* all bear a close resemblance to each other; and are therefore separated with difficulty.

Say's, Walker's and Fitch's species are not included in the table. The descriptions of all are reproduced on page 138 and following.

1. *Sciara picea* Rübsaamen.

Berlin. Ent. Zeitschr. XXXIX, 32. 1894.

Female. Length 11 mm., wing 9 mm., antennæ 4 mm. Head and thorax black, the latter slightly pruinose. Abdomen fuscous with broad orange colored lateral spots, posterior margins of the tergites narrowly yellow; all the parts fuscous. Costal cell of the wing broad, wing brown, costal, subcostal and cell R_1 darkest; subcosta ends free opposite base of Rs; R_1 ends somewhat distad of the base of the fork of M; costa produced half way from Rs to M_1; petiole of the cubitus very short. "Ga."

Twelve specimens, from N. C., Ga., and Fla., are as described

above with the following variations. R_1 in most of the specimens ends a little more distad and the costa is somewhat more produced (Fig. 218); the thorax is subshining, though also somewhat pruinose; the abdomen varies from wholly reddish, excepting the fuscous terminal joints, to a uniform fuscous, most of the specimens having the sides of the abdominal segments more or less dusky red. Length 8 to 9 mm. (dried specimens), wing 8 mm. Only the costa and radius of the wing with setæ. Ovipositor as figured (Fig. 143).

2. *Sciara cingulata* Rübsaamen.

Berlin. Ent. Zeitschr. XXXIX. 31. 1894.

Female. Length 7.25 mm.; wing 5.5 mm., antennæ 3 mm. Mesonotum black polished; humeri and collar yellow; pleura yellowish brown, abdomen fuscous black, with orange colored lateral spots; segments with yellow posterior margins. Palpi, antennæ, knobs of halteres, and tarsi brown; pedicel of halteres, coxæ, femora, and tibiæ yellow, trochanter black below. The basal flagellar joints, twice, the more terminal joints thrice as long as broad. R_1 of the wing ends about opposite the base of the fork of the media; costa produced 2-3 of distance from Rs to M_1; petiole of the cubitus shorter than the width of the costal cell (less than 1-2 as long as the basal section of M according to the author's figure). Legs slender, setæ of the tarsi strong; claws small. Terminal lobe of ovipositor oval, 1-2 as long as the preceding joint. "Georgia."

3. *Sciara vicina* n. sp.

Male. Length 2.2 mm. Head shining black, face dull, palpi and antennæ fuscous, the last about as long as the body. Thorax including scutellum and metanotum shining black, pleura dull. Abdomen subshining black, sparsely black haired; hypopygium black, clasper (Fig. 100). Coxæ yellow, legs yellow, tarsi more brownish, trochanters black below; hind tarsus an eighth shorter than the tibia. Wing (Fig. 210) hyaline, anterior veins darker, longitudinal veins except subcosta and petiole of media sparsely setose. Halteres dark, petiole paler toward base. Ithaca, N. Y., June.

4. *Sciara dives* n. sp.

Male and female. Length 2 mm. Head, thorax and abdomen subopaque fuscous black; palpi and antennæ fuscous (apical joints lacking). Abdomen sparsely black haired; hypopygium dark, clasper (Fig. 101). Coxæ and legs yellowish brown, tarsi darker, hind tibia and tarsus subequal in length. Wing hyaline (Fig. 220), anterior veins brownish, longitudinal veins except subcosta and petiole of media sparsely setose. Halteres dark, petiole slightly paler towards base. Stanford Univ., Cal. (J.M.A.) Jan.

5. *Sciara futilis* n. sp.

Male and female. Length 2.5-3.5 mm. Head subshining blackish, face and palpi reddish, 2 basal joints of antennæ yellowish; flagellum dusky. Thorax subshining brownish black, humeri, scutellum, and pleura reddish brown. Abdomen dark brown venter a little paler; hypopygium yellow, clasper (Fig. 102). Coxæ and legs yellow, tarsi darker, trochanters black below; hind tarsus nearly 1-4 shorter than the tibia. Wings hyaline (Fig. 221), anterior veins darker, longitudinal veins except subcosta and petiole of media sparsely setose. Halteres dusky yellow. Wis. (W.M.W.).

6. *Sciara abdita* n. sp.

Male. Length 2.5 mm. Head, thorax and abdomen blackish, mesonotum subshining, humeri paler; palpi, antennæ and halteres fuscous; coxæ and legs yellowish; tarsi darker; hypopygium black, claspers subglobose with several apical spines which are not sharply differentiated from the apical setæ (Fig. 258); antennæ about 0.6 as long as the body. Wings hyaline, anterior veins brownish, all longitudinal veins except the subcosta, setose (Fig. 266). Kearney, Ont. (M. C. VanDuzee).

7. *Sciara ochrolabis* Loew.

Berliner. Ent. Zeitschr. XIII. 160, 1869.

Male. Length 2.5-3 mm. Head black, face more reddish, palpi fuscous, scape of antennæ yellow, flagellum fuscous, nearly as long as the body. Mesonotum with 3 shining brownish black subconfluent stripes which in immature specimens may be reddish, scutellum the color of the mesonotum; metanotum and pleura ranging from reddish yellow to reddish brown. Abdo-

men reddish brown, or more rarely subfuscous, apical segments fuscous; hypopygium very large, yellow, margin of clasper black (Fig. 103). Coxæ and legs pale yellow, trochanter tipped with black, tarsi dusky. Wings subhyaline (Fig. 222), anterior veins dark; longitudinal veins except subcosta and petiole of the media, sparsely setose. Halteres black, petiole yellow. "N. Y.;" Ithaca, N. Y., Wis.

Female. Colored like the male; though the abdomen is usually somewhat darker; ovipositor dark (Fig. 145); antennæ not elongate. Same localities.

8. *Sciara habilis* n. sp.

Male and female. Length 3 to 4.5 mm. Black, thorax and abdomen subshining, with yellow hairs; antennæ and palpi fuscous, antennæ about half the length of the body in the male. Hypopygium dark, claspers (Fig. 139). Coxæ and legs bright yellow; hind tibia and tarsi subequal, trochanters black below. Wings hyaline, all veins setose except subcosta, yellow (Fig. 256). Halteres yellow. Ithaca, N. Y.!, June; Black Mts., N. C., (W.B.), June; Kearney, Ont.

9. *Sciara sciophila* Loew.

Berliner Ent. Zeitschr. XIII. 160, 1869.

Male and female. Length 3.2-3.9 mm. Black including the palpi and knob of the halteres; thorax shining, humeri dusky yellow, coxæ and legs pale yellow, trochanters and tarsi fuscous black, wings, semi-hyaline, "D. C."

Some males captured at Falls Church, Va. (Banks, Col.) agree with Loew's extended description and with the type at Cambridge excepting that the antennæ are wholly black including the second joint of the scape, the humeri are black, and the coxæ and legs are dusky yellow. The longitudinal veins, excepting the subcosta, are sparsely setose (Fig. 223). The hypopygium is large, subglobose, and black; clasper (Fig. 104).

10. *Sciara fulvicauda* Felt.

Rept. State Ent. N. Y. XII. 227, 1897.

Male. Length 4 mm. Face ochreous; vertex dark ochreous; scape of antennæ yellow, flagellum dark ochreous with rather dense whitish pubescence barely as long as head and thorax;

palpi fuscous; dorsum of thorax yellowish to rufous, the scutellum of the metathorax with variable dark stripes, in some specimens hardly discernible; pleura yellow; wings hyaline, anterior veins fuscous; knob of halteres fuscous with yellow tip, pedicel yellowish, tip of trochanter black; coxa and femur dull yellow; tibia darker; tarsi fuscous apically, abdomen fuscous except the yellow terminal segment bearing the large ochreous claspers which are tipped with fuscous (Fig. 111). Costa and radius with setæ, R_1 ends about opposite the fork of the media, the base of Rs proximad of the mid point between the humeral crossvein and the tip of R_1, Rs ends slightly proximad of the tip of M_2; petiole of the cubitus less than half as long as the basal section of the media; cubitus produced over 3-4 of distance from tip of Rs to tip of M_1. Reared from decaying blackberry roots. "Atlantic Co., N. J."

11. *Sciara tridentata* Rübsaamen.

Grönländische Mycetophiliden, etc. 107. 1898.
validicornis Lundbeck. Dipt. Groenl. 1. 243. 1898.

Male. Length 3 mm., wing 3.5 mm., antenna 1.5 mm. Shining black, lateral stripe of abdomen scarcely paler; halteres and palpi fuscous. Flagellar joints scarcely longer than wide, except the last which is 1.5 as long as wide. R_1 ends about opposite the base of the fork of M, base of Rs arises a little distad of the mid point between humeral crossvein and the tip of R_1; costa produced about half way from the tip of Rs to M_1; petiole of cubitus somewhat shorter than basal section of the media. Clasper as figured (Fig. 109). "Greenland; Lowe Inlet, B. C."

12. *Sciara munda* n. sp.

Male. Length 3 mm. Black, antennæ wholly, palpi, halteres and apical part of abdomen fuscous black, thorax subshining; base of abdomen brown; coxæ and legs pale brown, tarsi darker; hind tibia and tarsi subequal. Hypopygium black, clasper (Fig. 105). Wings subhyaline, veins strong (Fig. 224). Friday Harbor, Washington (J.M.A.).

13. *Sciara dux* n. sp.

Male. Length 2.5 mm. Black, thorax shining, second joint of scape, petiole of halteres, coxæ and legs yellow, tarsi dusky;

hind tibia and tarsi subequal. Hypopygium black, subglobose, clasper (Fig. 106). Wings grayish hyaline, anterior veins dark (Fig. 225). Wis.! (W.M.W.).

Female. Length 4 mm. Colored like the male but the anterior cells of the wing more smoky. Ithaca, N. Y. June.

14. *Sciara imitans* n. sp.

Male. Length 2.8 mm. Black, thorax shining, fore coxæ yellowish, hind coxæ and legs brownish, tarsi darker; hind tibia and tarsi subequal, antennæ about half the length of body. Hypopygium black, robust, subglobose, clasper (Fig. 107). Wings grayish hyaline, anterior veins dark (Fig. 226). Resembles *S. dux* but differs chiefly in the form of the mesal process of the claspers. Friday Harbor, Wash. (J.M.A.) May.

15. *Sciara prolifica* Felt.

Rept. State Ent. N. Y. XII. 226. 1897.

Male. Length 2.8 mm. Black, subopaque, the scape and the dorsal surface of the prominent hypopygium dusky yellow; clasper (Fig. 108); antennæ about 1-2 the length of the body; the narrow hind margins of the abdominal tergites sometimes distinctly cinereous; halteres, coxæ and legs yellow, the hind coxæ and tarsi more dusky; trochanters black. Wings grayish hyaline, the veins fuscous (Fig. 227). Id., Wash., (J. M. A.). Ithaca, N. Y.

The type specimens (balsam mounts) are 4.4 mm. long. According to Dr. Felt's description the knob of the halteres are fuscous and coxæ and legs are darker, otherwise there are no differences.

Female. Like the male but slightly larger. "Mass."

Var. a. Male. As above with the wings more heavily shaded (Fig. 228) and petiole of the cubitus over .8 as long as the basal section of M. Ithaca, N. Y.

Var. b. Male and female. Cubitus like in Var. a, otherwise as in the typical variety. S. D., Cal., (J.M.A.); R. I. (J.B.); Selkirk Mts., B. C. (J.C.B.).

16. *Sciara silvestrii* Kieffer.

Bol. Lab. Zool. Scuola d'Agr. Portici IV. 327, 1910.

Female. Length 4 mm. Dusky red, antennæ brown, legs

pale brown, halteres white. Wings like those of *S. Zealandica* but the tip of R_1 ends at the middle of the wing which is much nearer the tip of Rs than to the base of wing, tip of Rs more proximad than the tip of M_2, the costa ends 4 to 5 times nearer the tip of M_1 than to Rs. Tarsi with short setæ below. Lamellæ of the ovipositor 2 to 3 times as long as broad, "N. Y." The *S. zealandica* here referred to has a venation strongly resembling the wing of *S. coprophila* (Fig. 236), but differs in having R_1 ending more proximad than in *S. coprophila,* and in the cubitus forking distad of the base of the petiole of the media. The latter condition is rare and if true also for *S. silvestrii* would make it readily recognizable.

17. *Sciara mellea* n. sp.

Male. Length 2 mm. Honey yellow; the vertex, the abdomen and tarsi pale brown, the flagellum of antenna fuscous, eyes black; hypopygium pale, clasper (Fig. 110). Wing hyaline, anterior veins dusky (Fig. 229). Salineville, Ohio.

18. *Sciara tritici* Coquillett.

Insect Life. VII. 408. 1895.

Male. Length 1.8 mm. Antennæ two-thirds as long as the body, black, the first 2 joints fulvous; head black, the face fulvous; palpi brown. Thorax dorsally fulvous, the pleura brownish, marked on the lowest third with a whitish vitta, also with a whitish spot below the humerus. Abdomen reddish-brown, clasper with several short claw-like processes on the apical third of the inner side and at the tip (resembling Fig. 120). Legs testaceous. Wings grayish hyaline, venation resembling that of *Sciara neglecta* shown in Fig. 242, but in *S. tritici* M_1 is .78 as long as the petiole of the media and the cell R_1 narrower toward the apex. Halteres yellow, the knob brownish.

Female. Length 2.5 mm. Same as the male except that the antennæ are only half as long as the body. The last joint of the ovipositor is slightly longer than wide.

This species is injurious to wheat, its larvæ feeding on the roots and mining in the stems.

19. *Sciara hastata* n. sp.

Male and female. Length 1.5 mm. Shining black, scape and flagellum of antennæ and palpi fuscous; hypopygium dark, clasper (Fig. 112). Coxæ and legs dusky yellow, tarsi darker, hind tibia and tarsus subequal, trochanter black. Wings (Fig. 230), hyaline, veins fuscous. Halteres brownish. Tompkins Co., N. Y. June, July.

20. *Sciara pauciseta* Felt.

Rept. State Ent. N. Y. XII. 224, 1897.

Male. Length 2 mm. Black, thorax subshining; antennæ and palpi fuscous; hypopygium dark, clasper (Fig. 117). Antennæ nearly as long as the body. Coxæ and legs yellowish, trochanters black below, tarsi fuscous, hind tibia and tarsi subequal. Wings hyaline, anterior veins fuscous (Fig. 231). Halteres fuscous with yellowish petiole.

Female. Like the male in coloring; antennæ about half the length of the body. Ovipositor (Fig. 141). Both sexes from Grand Forks, B. C. (Dr. Hewitt); Ithaca, N. Y., July-Oct.; Claremont, Cal. (Prof. Baker). The Ithaca specimens were reared from gooseberries, the Canadian specimens from decaying choke cherries, those from California, from orange or lemon twigs.

Co-type specimens (balsam mount) kindly loaned by Dr. Felt measures 2.75 mm. "N. J." Reared from decaying potatoes.

21. *Sciara multiseta* Felt.

Rept. State Ent. N. Y. XII, 223. 1897.

Male. Length 2.5 mm. Closely resembles the foregoing in structural characters but differs in having a larger number of setæ (over 25) in the patch stiuated on the middle of the dorsal surface of the hypopygium near its base (Fig. 124). In color it differs in being lighter, the abdomen variable dark ochreous, palpi yellowish and anterior wing veins dark ochreous.

Female. Similar in color; length 3 mm. Reared from mushrooms by Dr. J. B. Smith, "N. J."

22. *Sciara agraria* Felt.

Rept. State Ent. N. Y. XII. 225, 1897.

Male. Length 2.5 mm. In all structural characters like *S. multiseta,* setæ in dorsal patch of the hypopygium over 25 in number. In coloring like *S. pauciseta.*

Female. Similar but slightly larger. "Numerous in mushroom cellar, Albany, N. Y."

23. *Sciara jucunda* n. sp.

Male. Length 2.5 mm. Black, including antennæ, palpi, and halteres; mesonotum subopaque. Antenna about 1-2 as long as the body. Hypopygium black, near its base with a small median dorsal lobe margined with setæ (Fig. 123a); clasper without apical tooth (Fig. 123). Coxæ, dusky yellow, hind pair brown, legs dusky yellow to brownish, tarsi darker; hind tarsus but little longer than the tibia. Wings grayish hyaline; veins brown, strongly marked (Fig. 232). Halteres fuscous, pedicel paler fuscous, Kingston, R. I.! (J.B.); Ithaca, N. Y., June-Aug., Niagara Falls, N. Y.

Female. Length 3 mm. Colored like the male, but anterior cells of the wing more smoky. Wisconsin and Ithaca, N. Y.

24. *Sciara* sp.

Male. Length 1.2 mm. Black, thorax shining, hypopygium dark, clasper (Fig. 119). Antennæ broken, basal joint and palpi black. Coxæ fuscous, legs brownish, tarsi darker; hind tarsus shorter than the tibia. Wings hyaline (Fig. 239). Halteres fuscous. Kingston, R. I. (J.B.).

25. *Sciara mutua* n. sp.

Male. Length 2 mm. Head and antennæ fuscous, scape and 2 basal joints of flagellum yellow; antenna about 3-4 the length of the body. Thorax and abdomen reddish brown, subshining, mesonotum, scutellum and metanotum subfuscous. Hypopygium yellowish to dusky, clasper (Fig. 113). Coxæ and legs yellow, tarsi darker, trochanters black below, hind tarsus 1-16 shorter than the tibia. Wings hyaline, veins subfuscous (Fig. 233). Halteres yellow. Ithaca, N. Y.!, June; N. Evans, N. Y.

26. *Sciara nacta* n. sp.

Male and female. Length 1 mm. Fuscous, including antennæ and palpi; thorax subshining, hypopygium dusky, clasper (Fig. 114). Coxæ and legs dusky yellow, trochanters black below, tip of metatarsus and remaining tarsal joints fuscous; hind tibia .05 longer than the tarsus. Wings hyaline, veins fuscous (Fig. 234). Halteres subfuscous. Ithaca, N. Y.

27. *Sciara* sp.

Male. Length 2.5 mm. Fuscous, including antennæ and palpi; thorax subshining; hypopygium dark, clasper (Fig. 116). Coxæ and legs yellowish, tarsi darker. Wings hyaline, veins dusky (Fig. 235). Halteres dusky yellow. Orono, Maine; June.

28. *Sciara lugens* n. sp.

Male and female. Length 2.5 mm; antennæ of male 2.2 mm; of female 1.3 mm. Black; thorax highly polished, abdomen subshining; antennæ, palpi, halteres, and hypopygium fuscous, resembling that of *S. jucunda* but lacking the median ventral transverse row of setæ; claspers subglobose resembling Fig. 123; coxæ, and legs brown, tarsi darker; hind metatarsus 1-8 shorter than the tibia. Wing hyaline (Fig. 257). Reared from larvæ found in decaying wood. Orono, Maine.

29. *Sciara parilis* n. sp.

Male. Length 2 mm. Shining black, palpi, halteres, and antennæ fuscous, the last about 3-4 as long as the body, the intermediate joints of the flagellum robust, less than twice as long as broad. Coxæ and legs pale brownish, fore coxæ rather paler; hind tibia 1-16 longer than the tarsus. Wings grayish hyaline, anterior veins fuscous (Fig. 238). Hypopygium dark, clasper (Fig. 118). Lawrence!, and Douglas Co., Kas. June-August.

Female. Similar to the male in coloring; antennæ shorter. Ithaca, N. Y. and Kansas.

30. *Sciara fatigans* n. sp.

Male and female. Length 1 mm. Fuscous, thorax subshining, hypopygium dark, clasper (Fig. 135); antenna of the male long, more than .8 length of the body, fuscous; palpi yel-

low. Coxæ and legs yellow, tarsi darker. Wings hyaline, anterior veins brownish (Fig. 241). Halteres dusky yellow. Ithaca, N. Y.

31. *Sciara sativae* n. sp.

Male. Length 1 mm. Fuscous, hypopygium dark, clasper (Fig. 120); antenna long, more than .8 length of the body, fuscous; palpi, coxæ, legs and halteres yellow, tarsi darker. Wings hyaline, petiole of media and M_2 subequal in length (Fig. 240). Bred from wheat plant infested by Hessian flies. Wilson, Kas. (T. J. Headlee). The larvæ are supposed to prey upon the puparia of the Hessian fly.

32. *Sciara cucumeris* n. sp.

Male. Length 0.8 mm. Black, mesonotum shining, abdomen sometimes fuscous; palpi, halteres and antennæ fuscous, the last about 0.6 as long as the body; coxæ and legs yellowish, the tarsi darker, hind tibia and tarsi subequal. Hypopygium dark, claspers resembling those of *S. sativae* but with 3 subequal apical spines (Fig. 261). Wings hyaline with dusky veins (Fig. 267). This species was bred from cucumbers, by Mr. E. W. Gabourie, at Savanna, Ill. Feb. 29.

33. *Sciara* sp.

Male. Length 1.2 mm. Head and antennæ fuscous, palpi pale brown; antennæ nearly 3-4 as long as body; thorax reddish, dorsum slightly darker with two oval fuscous marks, one over the base of each wing; abdomen fuscous, hypopygium dark, clasper (Fig. 121). Coxæ and legs yellow, tarsi darker, hind tibia about .10 longer than the tarsus. Wings hyaline, veins infuscated. Costa produced .8 of distance from tip of Rs to M_1. Venation closely resembling Fig. 242 but with slightly longer petiole of the cubitus. Halteres infuscated, pedicel yellow at base. Ithaca, N. Y., August.

A specimen from Wisconsin differs in having the costa less produced.

34. *Sciara neglecta* n. sp.

Male and female. Length 1 to 1.5 mm. Fuscous, including palpi, antennæ, halteres and tarsi. Antennæ of the male nearly 3-4 length of the body. Coxæ and legs except tarsi, yellow;

hind tibia and tarsus subequal. Hypopygium dark, clasper (Fig. 122). Wings hyaline (Fig. 242). Stanford Univ.!, Feb., and Pacific Grove, Cal., (J.M.A.) May.

35. *Sciara nigricans* n. sp.

Male and female. Length 2 mm. Shining black, mesonotum highly polished, hypopygium dark, clasper (Fig. 125). Antennæ fuscous, about 3-4 as long as the body in the male, palpi subfuscous. Coxæ and legs pale yellow, tarsi fuscous. Wings grayish hyaline, vein dark, well marked (Fig. 243). Halteres pale yellow. Kingston, R. I.! (J.B.); Kas. (Tucker); Ithaca, N. Y. (May-Aug.)

36. *Sciara actuosa* n. sp.

Male and female. Length 1.5 mm. Black, shining, mesonotum highly polished, its longitudinal rows of pale setulæ conspicuous; hypopygium dark, clasper suboval with strong terminal spine (Fig. 260), antennæ fuscous with grayish pile, about 0.6 as long as the body in the male, but only about twice the longest diameter of the eye in length in the female. Palpi and halteres fuscous; coxæ and legs yellowish brown, tarsi darker, hind tarsi about 1-5 shorter than the tibia. Wings hyaline, anterior veins dark brown (Fig. 217). Niagara Falls (M. C. Van Duzee), Oct.; Ithaca, and Freeville, N. Y., (July).

37. *Sciara* sp.

Male. Length 2.2 mm. Head brown, palpi yellow, (antennæ broken off). Thorax dusky yellowish, the mesonotum fuscous, subopaque. Abdomen dusky yellow, posterior margins of the segments more brownish; hypopygium yellowish, clasper (Fig. 126). Coxæ and legs pale yellow, trochanters black below, tarsi broken. Wings hyaline, anterior veins dusky yellow (Fig. 244). Halteres yellow. Ithaca, N. Y.

38. *Sciara dolens* n. sp.

Male. Length 1.2 mm. Black, mesonotum subshining; scape and palpi fuscous, flagellum broken; hypopygium dark, clasper (Fig. 127). Coxæ and legs yellow, trochanters black below, hind tarsus 1-10 longer than the tibia, tarsi infuscated. Wings grayish hyaline, veins dark (Fig. 245). Halteres fuscous with yellow pedicel. Tompkins Co., N. Y., June.

39. *Sciara diluta* n. sp.

Male. Length 1.5 mm. Fuscous, including palpi and antennæ; mesonotum subopaque, antennæ nearly 3-4 length of the body; hypopygium dark, clasper (Fig. 132). Coxæ and legs pale brown, tarsi darker, hind tarsus slightly longer than the tibia. Wings grayish hyaline, veins darker (Fig. 251). Halteres yellowish.

Female. Colored as the male; larger, halteres infuscated. Both sexes from Ithaca, N. Y., July.

Var. a. Male. Similar but more blackish, halteres dark, and teeth of the claspers stronger (Fig. 140). Freeville, N. Y.

40. *Sciara varians* n. sp.

Male and female. Length 2 mm. Fuscous black, including antennæ and palpi; hairs of antennæ, thorax and abdomen light gray; thorax subshining; hypopygium dark, clasper (Fig. 115). Antennæ about 2-3 as long as the body. Coxæ and legs dusky yellow, hind pair more brownish, tarsi fuscous, hind tarsus .10 longer than the tibia. Wings grayish hyaline, anterior veins dark (Fig. 246). Halteres dusky yellowish. Lawrence, Kas.

Var. a. Male. Similar to the above but smaller, R_1 ends more proximad; and tibia and tarsus subequal in length. Halteres yellow. Ithaca, N. Y.

Var. b. Male and female. Similar to typical variety but the costa ends nearer M_1 and veins are heavier. Ithaca, N. Y.

Var. c. Male and female. Similar to the typical variety but R_1 ends nearly opposite the base of the fork of M (Fig. 255). Moscow, Id.

41. *Sciara scita* n. sp.

Male. Length 3 mm. Fuscous black, including palpi, antennæ, halteres and legs; mesonotum subshining; hairs and spines brown, antennæ about 2-3 as long as the body; claspers of hypopygium as figured (Fig. 128); hind tibia slightly longer than the tarsus. Wing brownish hyaline, veins black (Fig. 247). Newport, Oregon! (J.M.A.).

Female. Antennæ shorter, petiole of the cubitus a little shorter, and cell M_1 relatively narrower. Wash.

42. *Sciara fumida* n. sp.

Male and female. Length 2.2 mm. Head and antennæ fuscous, the latter elongate, (apical joints broken), palpi fuscous.

Thorax reddish, mesonotum, scutellum and metanotum fuscous, subopaque; humeri yellow. Abdomen and hypopygium fuscous, clasper (Fig. 129). Coxæ and legs yellowish, tarsi brown, hind tibia 1-8 longer than the tarsus. Wings hyaline, anterior veins brown (Fig. 248). Halteres brownish, pedicel yellowish. Ithaca, N. Y., August.

43. *Sciara trivialis* n. sp.

Male. Length 1.5 mm. Fuscous, including antennæ, palpi and halteres. Antennæ about 3-4 length of the body. Mesonotum subshining; hypopygium dark, clasper (Fig. 130). Coxæ and legs yellow, tarsi darker, hind tarsus .8 as long as the tibia. Wings grayish hyaline, veins dark (Fig. 249). Ithaca, N. Y.; Bronx Park, N. Y.!, (W.B.).

44. *Sciara acuta* n. sp.

Male and female. Length 1.75 mm. Black, head and mesonotum highly polished, the latter with the lines of paler hairs quite distinct, antennæ, palpi and halteres fuscous, pedicel of the last yellowish at base; antennæ over 3-4 length of the body in the male; hypopygium dark, clasper (Fig. 131). Coxæ and legs pale brown to brown, hind coxæ and tarsi darker, hind tibia and tarsi subequal. Wings hyaline, anterior veins brown (Fig. 250). Friday Harbor, Wash.!, and Moscow, Id. (J.M.A.), May; Lawrence, Kas.

45. *Sciara impatiens* n. sp.

Male. Length 1.25 mm. Fuscous, including antennæ which are less than 1-2 as long as the body, intermediate segments being but little longer than broad; palpi yellow. Thorax subopaque; hypopygium dark, clasper (Fig. 137). Coxæ and legs yellow, tarsi darker, hind tarsus slightly shorter than the tibia. Wings grayish hyaline, veins dark, strong (Fig. 252). Halteres fuscous. Bred from larvæ found in earth adhering to the roots of *Impatiens*. Ithaca, N. Y.

46. *Sciara coprophila* Lintner.

Rept. State Ent. X. 394. 1895.

Male. Length 2.5 mm., slightly shorter in dried specimens. Head and thorax black, subshining, abdomen dark brown to

black, antennæ, palpi and hypopygium fuscous, clasper (Fig. 133). Antennæ less than 3-4 length of the body in dried specimens. Coxæ and legs dusky yellow, tarsi darker, hind tibia and tarsi subequal. Wings grayish hyaline, veins dark (Fig. 236). Halteres brown with yellowish petiole.

Female. Colored like the male, hind tarsus slightly shorter than the tibia, antennæ about half the length of the body in dried specimens; lobes of the ovipositor dusky (Fig. 144). Both sexes, Montreal, Canada; Ithaca, N. Y.; Orono, Me. Larvæ in manure. Treesbank, Manitoba (N. Criddle.)

Var. a. Male and female. As above but petiole of the cubitus only .6 as long as the basal section of M, and halteres, coxæ and legs brighter yellow. Ithaca, N. Y.; Black Mts., N. C. (W.B.); Kas., and Col. (Tucker).

On examination of a slide of type material proves my specimens to be this species. Dr. Lintner's specimens were taken in a mushroom cellar at Albany, N. Y.

47. *Sciara caldaria* Lintner.

Rept. State Ent. X. 398. 1895.

Male. Length 2.5 mm. Head, thorax and abdomen black, the mesonotum shining; hypopygium black, in structure like the preceding species; antennæ and palpi fuscous, the intermediate flagellar joints nearly 3 times as long as wide, antenna over 3-4 as long as the body in dried specimens. Coxæ and legs brownish, the hind coxæ and sometimes also hind femora, dark brown; tarsi fuscous; hind tibia and tarsi subequal. Wings grayish hyaline, veins dark. Halteres fuscous.

Female. Similar to the male in coloring, antennæ shorter; terminal lobe of the ovipositor more elongate than in *S. coprophila* "Boise, Idaho." Captured in a green house.

An examination of a slide of the type material does not reveal any structural differences between this and the foregoing species, excepting that the antennæ in this appears to be a trifle longer.

Var. a. Similar to the above, but antennæ distinctly longer than in *S. coprophila* and the anterior wing veins heavier (Fig. 237). Ithaca, N. Y.

48. *Sciara ocellaris* Comstock.

Rept. of Comm. of Agr. 203. 1882.

Male. Length 1.5 mm. Head black, antennæ dark brown, basal joint light yellowish brown; pronotum light yellowish-brown; mesonotum yellowish brown in the center and darker at the edges; scutellum dusky brown; metathorax dark brown, almost black; abdomen with caudal portion of the segments, blackish, cephalic portions yellowish brown; clasper lighter brown. Poisers, with knob blackish, and base light brown. Tibiæ and tarsi dusky brown; femora lighter; coxæ still lighter. "N. Y., D. C." The figure given by the author of the wing shows that this species is closely related to *S. coprophila*.

An examination of the cotype material from the Cornell University collection shows that in structural characters including antennæ and wing venation the species is closely related to *S. coprophila* from which it differs in color characters and in the structure of the clasper which has on the dorsal-mesal margin 2 or 3 strong setæ in addition to the apical setæ (Fig. 263). This species was formerly supposed to cause the ocellate spots on maple leaves which are now attributed to a Cecidomyiid. Specimens from Buffalo, and Lancaster, N. Y., collected by Mr. M. C. Van Duzee do not differ from the types (Fig. 265).

The following descriptions by Say (Complete Writings I, 11), Walker (List. Dipt. Brit. Mus. I) and Fitch (Second Rept. 484-487) are too brief and general to permit of a recognition of the species. The dimensions given have all been reduced to the metric system.

S. abbreviata Walker. "Length 2 mm. Body black; abdomen tawny; feelers piceous; thighs tawny; shanks and feet brown; wings colorless; veins pale brown; poisers tawny. Canada; N. J., N. H."

S. atrata Say. "Length less than 5 mm. Entirely deep black, polished, immaculate; wings dusky, iridescent; nervures dark fuscous; poisers black; thorax in a particular light somewhat pruinose; abdomen opaque, with short black hairs; spines of the tibia rather longer than the transverse diameter of the tibia. 'N. W. Terr.' The nervures of the wings agree with those of *S. Thomae*." *S. thomae* has a venation of the type of *S. picea* but R_1 ends about opposite the forking of the media.

S. dimidiata Say. "Female. Length less than 5 mm. Thorax polished; wings fuliginous; costal margin blackish; middle nervure very distinct; poisers blackish; abdomen dull fulvous, with a few blackish hairs on the 3 basal joints, fourth a little darker; tip black; feet piceous black. Louisiana."

S. exigua Say. "Male. Length 1.2 mm. Black; thorax piceous at the anterior angles; poisers whitish at base; feet whitish, dusky at tip. Antennæ fuscous, with dark gray hairs; wings a little dusky, nervures fuscous; poisers elongated whitish, capitulum fuscous; abdomen fuscous, opaque. Female. A little larger with the base of the feet and of the poisers of a darker shade than those of the male. N. W. Terr."

S. exilis Say. "Male. Length .8 mm. Body dusky; antennæ as long as the body; stethidium yellowish white; thorax blackish; wings dusky, apical forked nervure wide, the inferior portion hardly arquated; halteres subclavate, about half as long as the abdomen, a little dusky; abdomen a little hairy; feet pale. Indiana."

S. femorata Say. "Length less than 2.5 mm. Wings hyaline, nervures fuscous; poisers large; coxæ and thighs pale or yellowish white; abdomen dirty yellowish obscure, lateral margin and posterior margins of the segments blackish. Pa."

S. fraterna Say. "Female and male. Length 2.5 mm., male smaller. Deep black, polished; abdomen black-brown, opaque. Antennæ dark fuscous, with dense grayish hair; eyes in contact above the antennæ; thorax polished; wings dusky, pale yellowish at base; poisers with a yellowish scapus and fuscous capitulum; feet dusky towards the tip. N. W. Terr."

S. fuliginosa Fitch. "Length 4.5 mm. Black with blackish brown shanks and pale thighs, their haunches being commonly white. Its wings are semi-transparent and smoky. The 16 cylindrical joints of its antennæ are more widely separated from each other by short intervening pedicles than in *S. mali.* N. Y." "N. J."

S. inconstans Fitch. "Length 2 mm. Black with the thorax smooth and slightly shining, the thighs pale and whitish, and the wings pellucid and glassy with an iridescent violet and red reflection. N. Y."

The species identified with this in entomological literature and reported from Ill., Ky., Me., Neb., N. J., N. Y., O., Ottawa, Pa. and Va., is in all probability a composite; = S. *prolifica* + *S. coprophila* Whether either one is identical with S. *inconstans* is problematical.

S. lurida Walker. (Dipt. Saund. 418). "Div. A, b. Meigen. VI. 305. Black. Abdomen piceous, tawny beneath. Legs tawny; tibiæ and tarsi brown. Wings brown; veins brown, tawny at the base. Halteres tawny. Length 4 mm. U. S."

S. mali Fitch. "Length 3.7 mm to the tips of the wings. Head and thorax black. Abdomen dusky, almost black, with a bright yellow band at each of the sutures. Legs are black as are the antennæ also, though of less deep tint than the head and thorax. Poisers dusky. Wings dull hyaline, tinged with smoky, and are a fourth longer than the abdomen. In the female the antennæ are half the length of the body. N. Y." Larvæ feed on apples following in the trail of the codling moth.

S. perpusilla Walker. "Length 1.5 mm. Body piceous, small and slender; feelers black; legs brown; thighs tawny; wings slightly gray; the costal veins dark brown, the rest paler and more slender; poisers tawny." Canada.

S. polita Say. "Female. Length less than 4 mm. Deep black, thorax and abdomen both highly polished. Body with numerous short hairs which are slightly sericeous; eyes without interval above the antennæ; wings dusky, pale yellowish at base; poisers whitish; feet dusky towards the tip; coxæ and thighs yellowish white. N. W. Terr."

S. punctata Walker. "Length 2.5 mm. Head black; feelers piceous; chest very dark piceous; abdomen dull red with a row of black spots on each side; legs tawny; wings gray; fore border veins dark brown, the rest as usual paler and more slender; poisers tawny. North Amer."

S. robusta Walker. "Length 4 mm. Body black, stout, pubescent; a dark red line along each side; feelers black, robust; legs dark piceous, rather thick; wings black, as are also the veins and the poisers. Canada."

S. rotundipennis Macq. Dipt. Exot. I. 2. 178. 1838. "Female. Length 4.5 to 6 mm. Black, abdomen fuscous testaceous. Wings fuscous, exterior margin, rotund. Antennæ with gray reflection. Cells C and R_1 more brown than the others; basal section of Rs far remote from the base of cell M_1. Carolina."

S. tilicola Loew. Mentioned in Professor Aldrich's catalogue. This is an European species not yet reported from North America.

S. vulgaris Fitch. Length 2.5 to 3 mm. Black with blackish brown legs and pale thighs. Its poisers are whitish and its wings hyaline. The sides of its thorax below the wings are tinged with pale, and the abdomen with brown, rarely pale. N. Y., N. H."

Type and Paratype Specimens of New Species.

The types and paratypes of the new species described in Parts I, II, III, and IV, of the "Fungus Gnats of North America" may be found in the collections noted below. The following abbreviations are used: J.M.A., (Prof. J. M. Aldrich's collection); O.A.J., (My own collection); A.M.N.H., (American Museum of Natural History); B.S.N.H., (Boston Society of Natural History); C.U., (Cornell University). The location of the type is given first, paratypes follow:

Palaeoplatyura aldrichii, JMA; P. johnsonii, BSNH.

Ceroplatus militaris, OAJ, BSNH.

Apemon nigriventris, OAJ, CU.

Platyura setiger, OAJ, JMA; P. minula, OAJ, JMA.

P. nigrita, JMA; P. moesta, JMA; P. moerens, OAJ, JMA; P. genualis, OAJ, AMNH; P. scapularis, OAJ, JMA.

Macrocera geminata, OAJ, CU; M. formosa, var. indigena, OAJ, CU.

Monoclona elegantula, OAJ, CU; M. furcata OAJ.

Sciophila galbana, OAJ, JMA; var. germana, AMNH; var. socia, BSNH; S. nugax, OAJ, AMNH; S. habilis, OAJ; S. incallida, OAJ, CU; S. hebes, OAJ, JMA; S. novata, OAJ, CU; S. impar, OAJ, AMNH, JMA; S. severa, OAJ; S. similis, OAJ.

Paratina recurva, OAJ.

Polylepta obediens, OAJ, AMNH, BSNH; P. nigellus, JMA.

Diomonus magnificus, OAJ, CU, BSNH; D. pulcher, CU.

Neoempheria macularis, OAJ, BSNH; N. impatiens, OAJ, JMA; N. indulgens, OAJ, CU, AMNH; N. illustris OAJ, CU.

Mycomyia littoralis, var. frequens, OAJ, AMNH, CU; M. sequax, OAJ, CU; M. marginalis, OAJ; M. imitans, OAJ, CU. AMNH; M. maxima, OAJ, BSNH; M. sigma, AMNH; M. mendax, OAJ, JMA, CU; M. nugatoria, OAJ, AMNH; M. recurva, OAJ, AMNH; var. chloratica, AMNH; M. incompta, OAJ, CU.

Gnoriste macra, OAJ, AMNH.

Neuratelia silvatica, OAJ; N. scitula, BSNH, OAJ; N. eminens, JMA; N. desidiosa, BSNH.

Leptomorphus ypsilon OAJ, CU.

Boletina obscura, OAJ, BSNH, CU; B. cincta, BSNH, OAJ; B. melancholica, OAJ, AMNH; B. imitator, JMA; B. gracilis, OAJ, AMNH; B. longicornis, JMA; B. notescens, OAJ, BSNH, JMA; B. sobria, OAJ, JMA; B. delicata, AMNH; B. obesula, OAJ; B. sedula, OAJ, JMA; B. nacta, OAJ, AMNH.

Leia nigra, OAJ, JMA; L. plebeja, OAJ, JMA, AMNH; L. dryas, AMNH, OAJ.

Phthinia curta, OAJ.

Coelosia gracilis, OAJ, AMNH; C. lepida, AMNH, JMA; modesta, JMA, AMNH.

Syntemna rejecta, BSNH; S. vittata var. fasciata, BSNH; S. separata, BSNH.

Megophthalmidia occidentalis, OAJ, JMA.

Anatella silvestris, OAJ.

Docosia nigella, OAJ; D. nitida, OAJ, JMA.

Trichonta cincta, BSNH; T. triangularis, OAJ, CU; T. bellula, BSNH; T. diffissa, OAJ, BSNH; T. patens, OAJ, CU.

Cordyla manca, OAJ; C. scita, OAJ, C. volucris, OAJ, CU; C. recens, OAJ, CU; C. neglecta, OAJ.

Brachypeza bisignata, var. divergens, OAJ, BSNH.

Rhymosia serripes, OAJ; R. inflata, OAJ, CU; R. imitator, OAJ, AMNH, CU; R. akeleyi, AMNH, BSNH; R. captiosa, OAJ, BSNH; R. diffissa, OAJ, JMA.

Allodia bulbosa, OAJ, BSNH, CU; A. actuaria, OAJ, BSNH; A. falcata, OAJ, AMNH, JMA; A. elata, OAJ, BSNH; A. bella, CU; A. beata, OAJ, CU; A. callida, JMA, OAJ; A. delita, JMA, AMNH.

Phronia producta, BSNH; P. insulsa, OAJ; P. venusta, OAJ, JMA; P. difficilis, OAJ, CU; P. similis, OAJ.

Telmaphilus nebulosa, OAJ, BSNH.

Exechia perspicua, OAJ, AMNH; E. nugax, OAJ; E. nexa, OAJ; E. abrupta, OAJ; E. canalicula, OAJ, CU, JMA; E. cincinnata, OAJ, BSNH, CU; E. quadrata, OAJ, AMNH, BSNH, CU; E. satiata, OAJ, CU; E. nugatoria, OAJ, AMNH; E. nativa, OAJ, CU; E. palmata, OAJ, AMNH, JMA, CU; E. assidua, OAJ, JMA; E. auxiliaria, OAJ, AMNH,; E. bellula, OAJ, BSNH; E. bella, OAJ, AMNH; E. captiva,

OAJ, BSNH; E. absoluta, OAJ, JMA, BSNH; E. capillata, OAJ, AMNH; E. obediens, JMA, AMNH; E. attrita, OAJ, AMNH, CU; E. repanda, OAJ, BSNH, CU; E. absurda, OAJ; E. casta, OAJ, AMNH.

Dynatosoma nigrina, OAJ; D. placida, OAJ.

Opistholoba ocellata, OAJ, CU.

Mycothera paradoxa, OAJ; M. mitis, AMNH; M. recta, OAJ; M. var. praenubila, OAJ, AMNH, JMA; M. impellans, OAJ, BSNH, JMA.

Mycetophila jucunda, OAJ; M. perita, OAJ, CU, AMNH; M. fastosa, OAJ; M. falcata, OAJ, JMA; M. lenis, OAJ; M. anomala, OAJ, AMNH; M. foecunda, OAJ, AMNH, CU, JMA; M. imitator, OAJ, CU, AMNH; M. perlonga, OAJ; M. pectita, OAJ, JMA; M. lassata, CU; M. lenta, OAJ, AMNH; M. fatua, OAJ, JMA; M. edura, OAJ, AMNH; M. exusta, OAJ, JMA, CU; M. jugata, OAJ; M. extenta, OAJ, CU; M. edentula, OAJ, BSNH; M. socia, OAJ, CU.

Sciara. All types in my collection. Paratypes as follows: S. dives, JMA; S. futilis, AMNH; S. imitans, JMA; S. hastata, CU; S. jucunda, CU; S. mutua, CU; S. parilis, E. S. Tucker; S. nigricans, CU, E. S. Tucker; S. varians, JMA; S. trivialis, AMNH.

Zygoneura flavicoxa, OAJ.

In the body of the work the type locality is indicated by an exclamation point.

Plate.

Details of hypopygia. Dorsal aspect of left half unless otherwise noted. Abbreviations used the same as in Part III. Figs. 24 to 29, *Phronia* species; figs. 31 to 57 *Exechia* species. 24, *P. producta* x 170. 25, *insulsa*, x 75. 26, *venusta*, x 60. 27, *difficilis*, x 60. 28, *similis*, x 300. 29, *rustica*, var. a, x 60. 30, *Telmaphilus nebulosa*, x 85. 31, *E. perspicua*, x 60. 32, *umbratica*, x 35. 33, *nugax*, x 60. 34, *nexa*, x 60. 35, *abrupta*, x 35. 36, *canalicula*, x 35. 37, *cincinnata*, x 35. 38, *quadrata*, x 35. 39, *satiata*, x 35. 40, *ditto*, va of apex of median margin. 41, *nugatoria*, x 35. 42, *nativa*, x 35. 43, *interrupta*, va of apex of median margin, after Lundström. 44, *palmata*, x 60 va. 45, *fungorum* va, after Lundström. 46, *assidua*, x 45. 47, *auxiliaria*, x 60. 48, *bellula*, va, x 60. 49, *bella*, x 35. 50, *captiva*, x 35, right hand members. 51, *absoluta*, x 60, b^1 is la of apex of b. 52, *capillata*, x 60, latero-dorsal aspect. 53, *obediens*, x 35. 54, *attrita*, x 35, b^1 la of b. 55, *repanda*, x 60. 56, *absurda*, x 60. 57, *casta*, x 60. 58, *Dynatosoma nigrina*, la of forceps, x 35. 59, *D. fulvida*, la of forceps, x 35. 60, *Opistholoba ocellata*, la of forceps, x 30. 61, *Epicypta trinotata*, x 35.

Plate.

Details of hypopygia. Figs. 62 to 67 Mycothera; figs. 68 to 95 Mycetophila; fig. 96 Sceptoria; figs. 97 and 98 Zygomyia. 62, *Mycothera paula*, va, x 35. 63, *paradoxa*, la of ovipositor, x 60. 64, *mitis*, x 60, la. 65, *recta*, x 170, la. 66, *fenestrata*, x 85, da. 67, *impellans*, x 170, la. 68, *Mycetophila exstincta*, x 85. 69, *jucunda*, x 85, la. 70, *perita*, x 45, da, b^1=b, x 85 la. 71, *fastosa*, x 60 da. 72, *punctata* forceps, x 60, da. 73, *falcata*, x 85, s, da, i, va. 74, *mutica*, x 60, s, da, i, va. 75, *mutica* var. a, x 85, va. 76, *lenis*, x 85, i, va, s, da. 77, *anomala*, x 35, la. 78,

bipunctata, x 60, da. 79, *inculta,* x 60, s, ma, i, va. 80, *scalaris,* x 85, da. 81, *foecunda,* x 35, va, f^1 is f enlarged, x 85. 82, *scalaris,* var. a, x 60 la. 83, *perlonga,* x 60, ma. 84, *pectita,* x 60, da. 85, *lassata,* x 60, da. 86, *lenta,* x 85, la. 87, *fatua,* x 60, da. 88, *edura,* x 60, la. 89, *exusta,* x 60, i, va, s, da. 90, *jugata,* x 60, la. 91, *imitator,* x 60, la. 92, *extenta,* s, x 60, da, i, x 60, ma. 93, *edentula,* x 85, la. 94, *trichonota* var. a, x 60, ma. 95, *socia,* x 85, la. 96, *Sceptonia nigra,* x 60, la. 97, *Zygomyia ignobilis,* x 170 ma. 98, Z. *ornata,* x 170, da. 99, *Zygoneura flavicoxa,* clasper, va.

Plate.

Claspers of hypopygia. Dorsal aspect unless otherwise stated. 100, *Sciara vicina,* x 75. 101, *S. dives,* x 150. 102, *S. futilis,* ventral aspect, x 55. 103, *S. ochrolabis,* x 55. 104, *S. sciophila,* x 55. 105, *S. munda,* x 75. 106, *S. dux,* x 55, ventral aspect. 107, *S. imitans,* x 55. 108, *S. prolifica,* x 75. 109, *S. tridentata,* after Rübsaamen. 110, *S. mellea,* x 75. 111, *S. fulvicauda,* x 30. 112, *S. hastata,* x 150. 113, *S. mutua,* x 75. 114, *S. nacta,* x 150. 115, *S. varians,* x 100. 116, *S. sp.,* x 75. 117, *S. pauciseta,* x 150, 117a, setæ. 118, *S. parilis,* x 100. 119, *S. sp.,* x 150. 120, *S. sativae,* x 150. 121, *S. sp.* x 100. 122, *S. neglecta,* x 150. 123, *S. jucunda,* x 75, 123a, setæ; 124, *S. multiseta,* setæ. 125, *S. nigricans,* x 75. 126, *S. sp.,* x 100. 127, *S. dolens,* x 190. 128, *S. scita,* x 75. 129, *S. fumida,* x 150. 130, *S. trivialis,* x 100. 131, *S. acuta,* x 150. 132, *S. diluta,* x 150. 133, *S. coprophila,* x 150. 134, *S. coprophila,* var., x 150. 135, *S. fatigans,* x 190. 136, *Pnyxia scabiei,* x 275. 137, *Sciara impatiens,* x 150. 138, *Eugnoriste occidentalis,* x 75. 139, *Sciara habilis,* x 100. 140, *S. diluta,* var. a., x 150.

Ovipositors, lateral aspect. 141, *Sciara pauciseta,* x 55. 142, *Eugnoriste occidentalis,* x 55. 143, *Sciara picea,* x 30. 144, *S. coprophila,* x 55. 145, *S. ochrolabis,* x 30.

Plate.

Note. Figs. 146 to 151 represent wings of species of *Allodia* which are described in Part III. 146, *Allodia falcata.* 147, *A. elata.* 148, *A. bella.* 149, *A. beata.* 150, *A. callida.* 151, *A. delita.* 152, *Phronia producta.* 153, *P. insulsa.* 154, *P. venusta.* 155, *P. difficilis.* 156, *P. similis.* 157, *P. rustica,* var. a. 158, *Telmaphilus nebulosa.* 159, *Exechia perspicua.* 160, *E. umbratica.* 161, *E. nugax.* 162, *E. nexa.* 163, *E. abrupta.* 164, *E. canalicula.* 165, *E. cincinnata.* 166, *E. quadrata.* 167, *E. satiata.* 168, *E. nugatoria.* 169, *E. nativa.* 170, *E. palmata.* 171, *E. assidua.* 172, *E. auxiliaria.* 173, *E. bellula.* 174, *E. bella.* 175, *E. captiva.* 176, *E. absoluta.* 177, *E. capillata.* 178, *E. obediens.* 179, *E. attrita.* 180, *E. repanda.* 181, *E. absurda.*

Plate.

182, *Exechia casta.* 183, *Dynatosoma nigrina.* 184, *D. fulvida.* 185, *Opistholoba ocellata.* 186, *Epicypta trinotata.* 187, *Mycothera paula.* 188, *M. paradoxa.* 189, *M. mitis.* 190, *M. recta.* 191, *M. fenestrata.* 192, *M. impellans.* 193, *Mycetophila exstincta.* 194, *M. jucunda.* 195, *M. perita.* 196, *M. fastosa.* 197, *M. falcata.* 198, *M. lenis.* 199, *M. anomala.* 200, *M. foecunda.* 201, *M. imitator.* 202, *M. perlonga.* 203, *M. pectita.* 204, *M. lassata.* 205, *M. lenta.* 206, *M. fatua.* 207, *M. edura.*

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Plate.

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Plate.

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ADDENDA.

Sciara hartii n. sp.

Mr. Chas. A. Hart recently records (Forbes, 15th Rept. State Ent. Ill., pp. 95-98) a species of *Sciara* seriously injurious to cucumbers in forcing houses. At my request Mr. Hart kindly sent me a number of specimens taken at Morrison, Ill. These proved to differ from any of the species noted on the previous pages. This species somewhat resembles *S. cucumeris* but is more closely related to *S. fatigans* from which it differs in having a wider wing, broader cell R_1, Rs less curved, ending a little more distad. The hypopygium differs in having apical hairs on the clasper more dense but apparently lacking the 2 smaller apical setæ. Alcoholic specimens are dusky yellow, but in life they are probably more or less fuscous. Antennæ of the male about ¾ the length of the body. Length (in alcohol) about 1.5 mm. One male and many female specimens. This species will find a place in the key with *S. fatigans* from which it may be distinguished by its venation.

Quite recently a new genus belonging to the *Mycetophilinæ* has been described by Landrock (Wien. Ent. Zeit. XXX. 161) represented by an European species. It will fall in with *Neuratelia* in the dichotomic table in Genera Insectorum (Fasc. 93). It may be distinguished from that genus by the strongly produced costa and the absence of one of the anal veins.

The generic name *Meuniera* proposed by me (Genera Insectorum, Fasc. 93, p. 87.) must be changed. It is already twice preoccupied.

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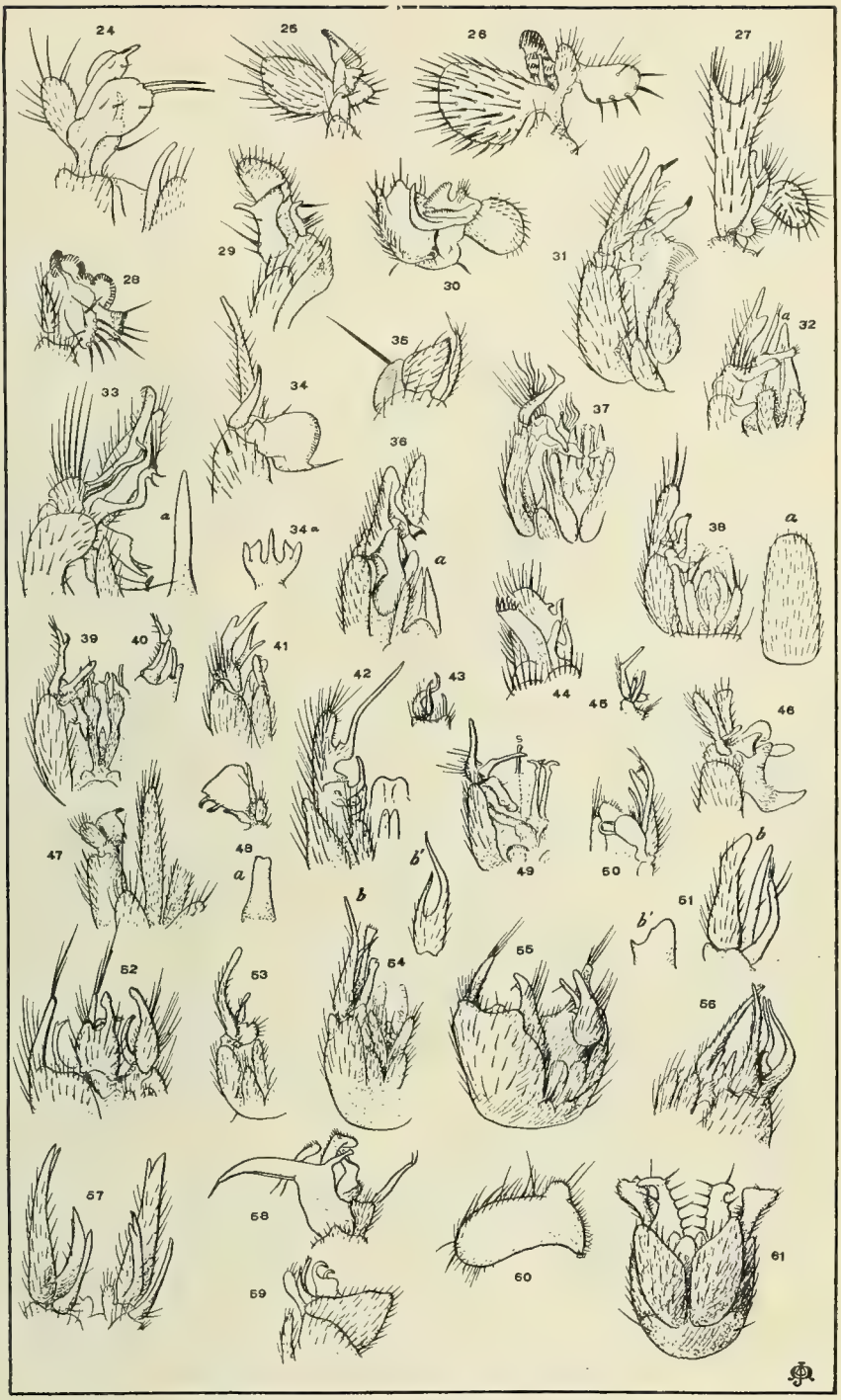

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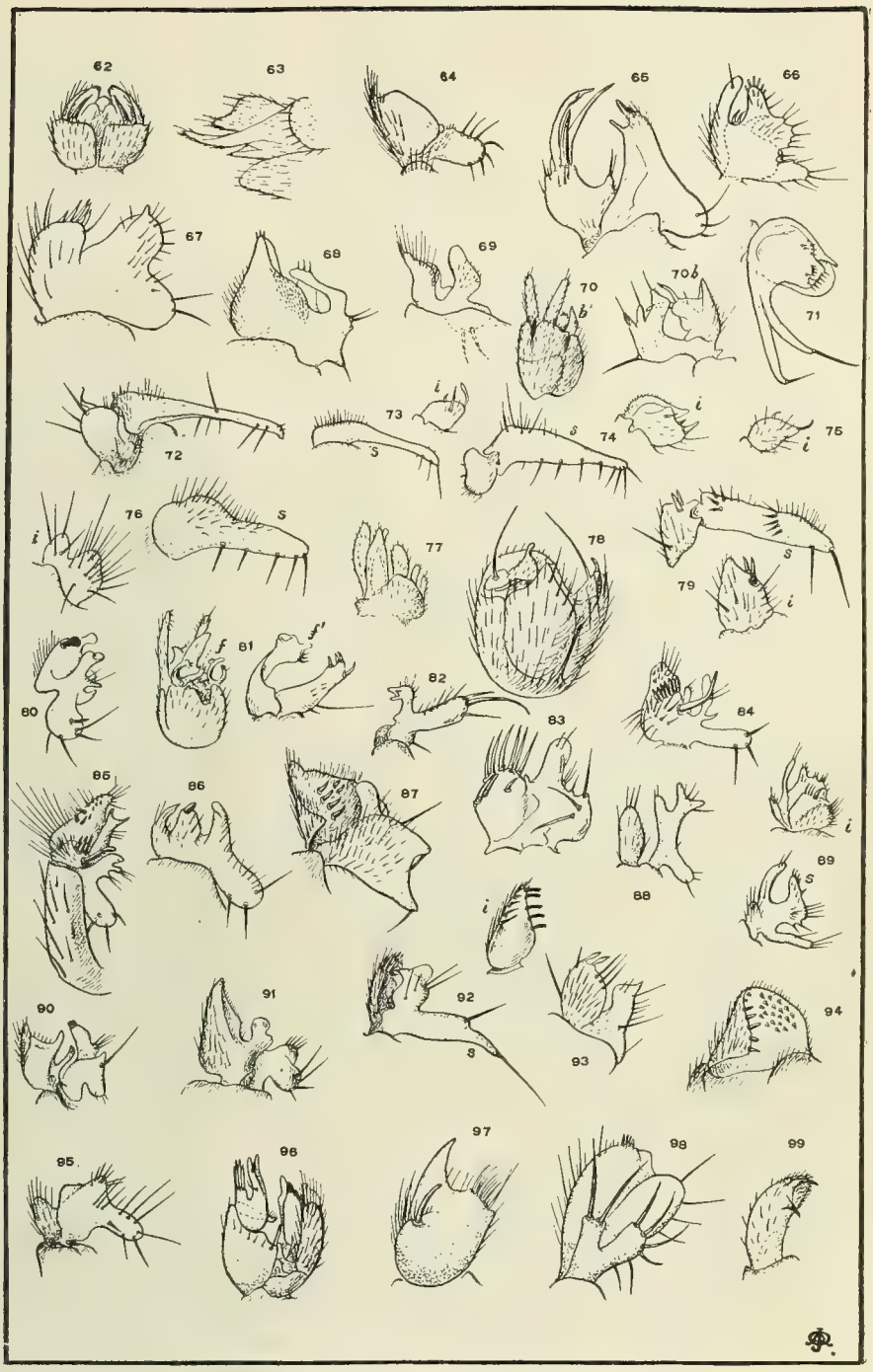

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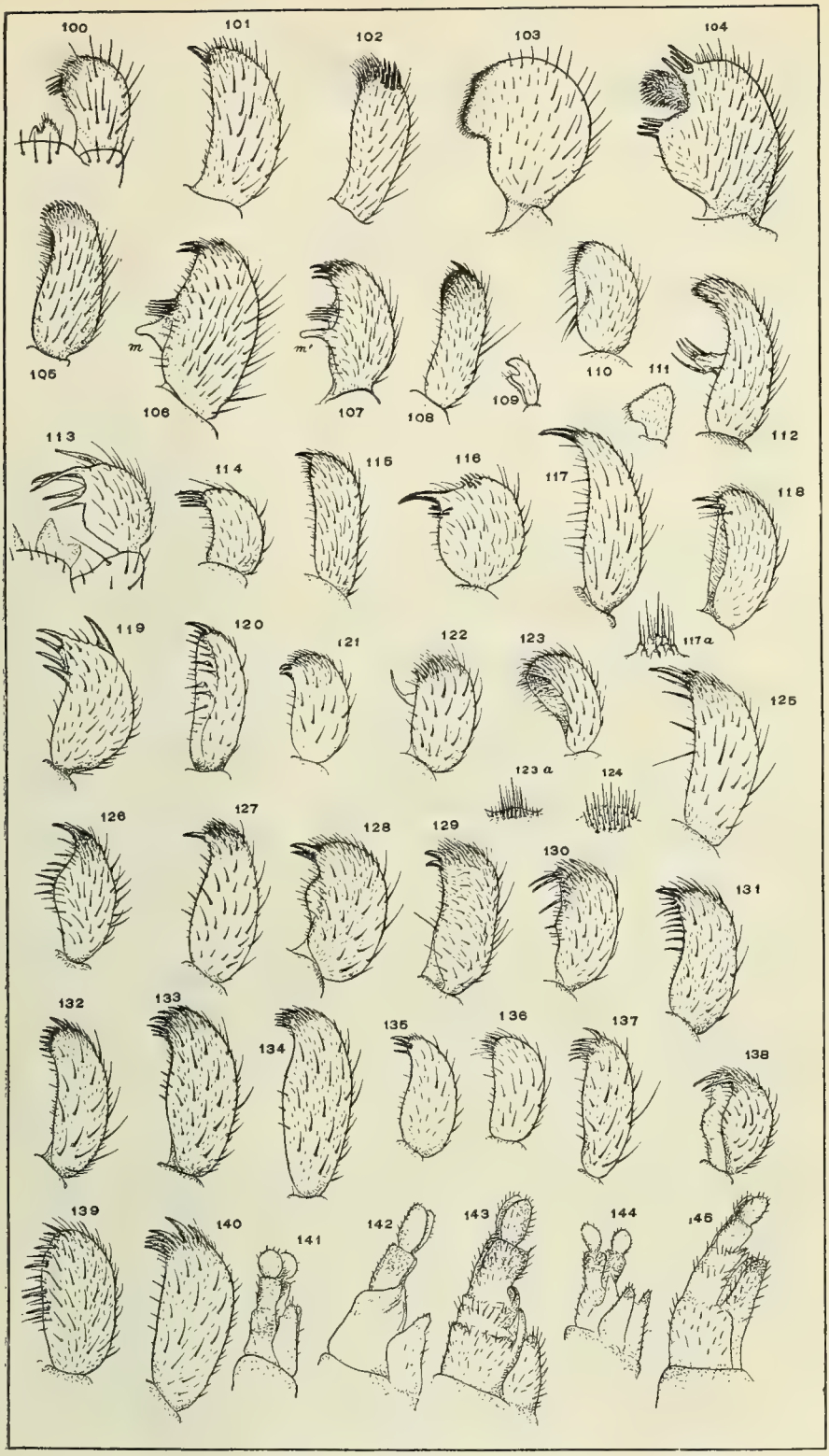

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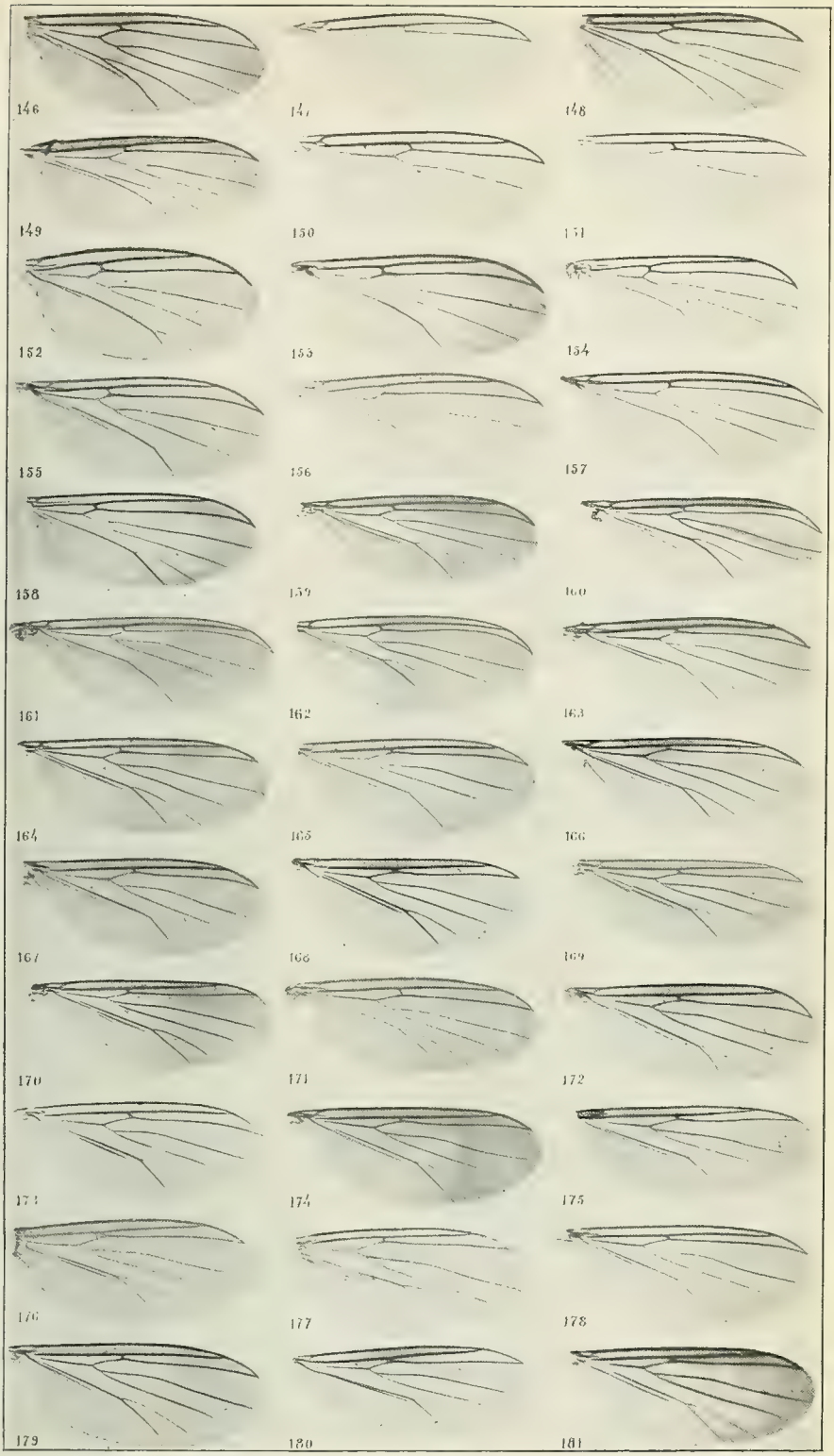

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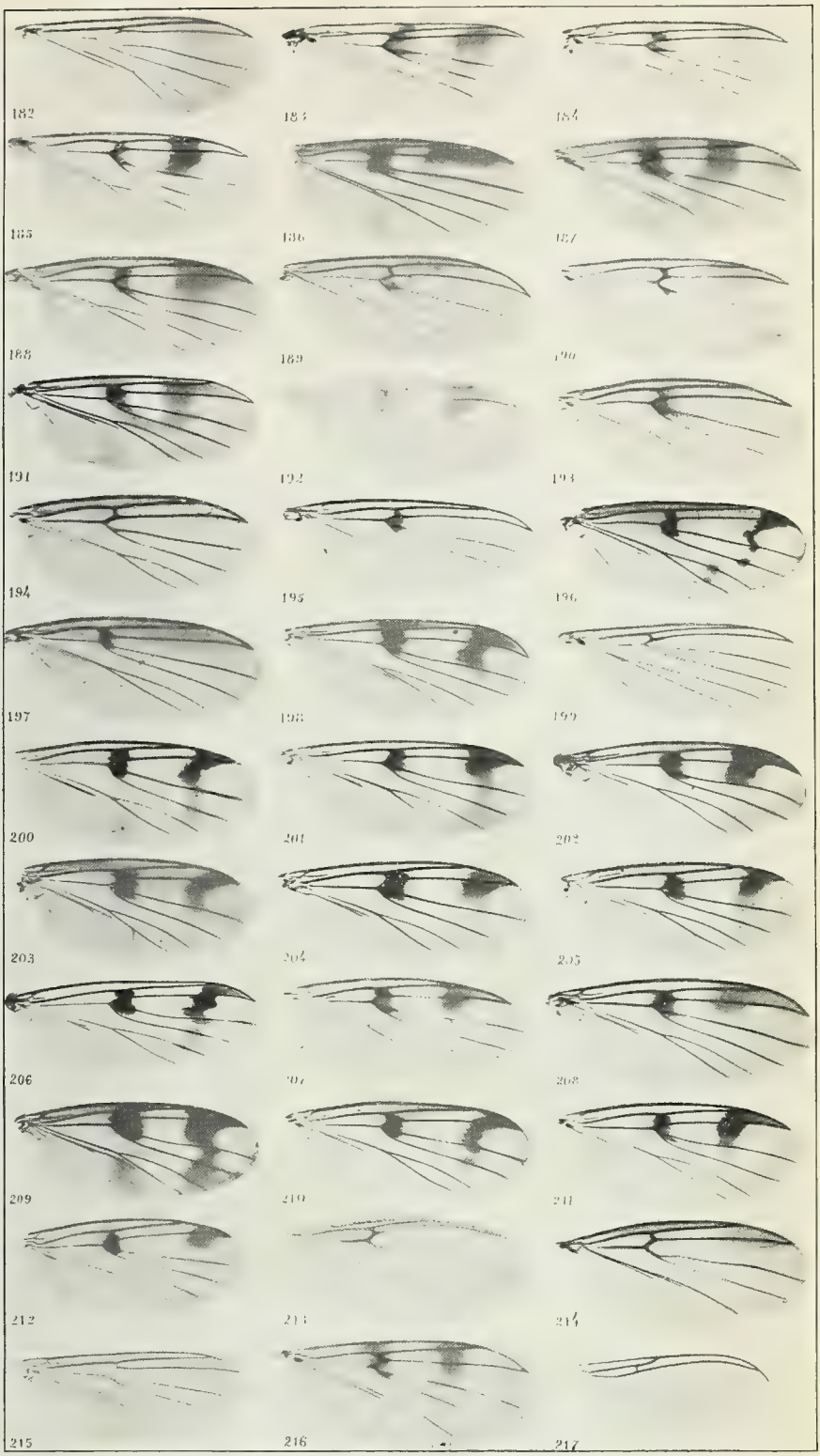

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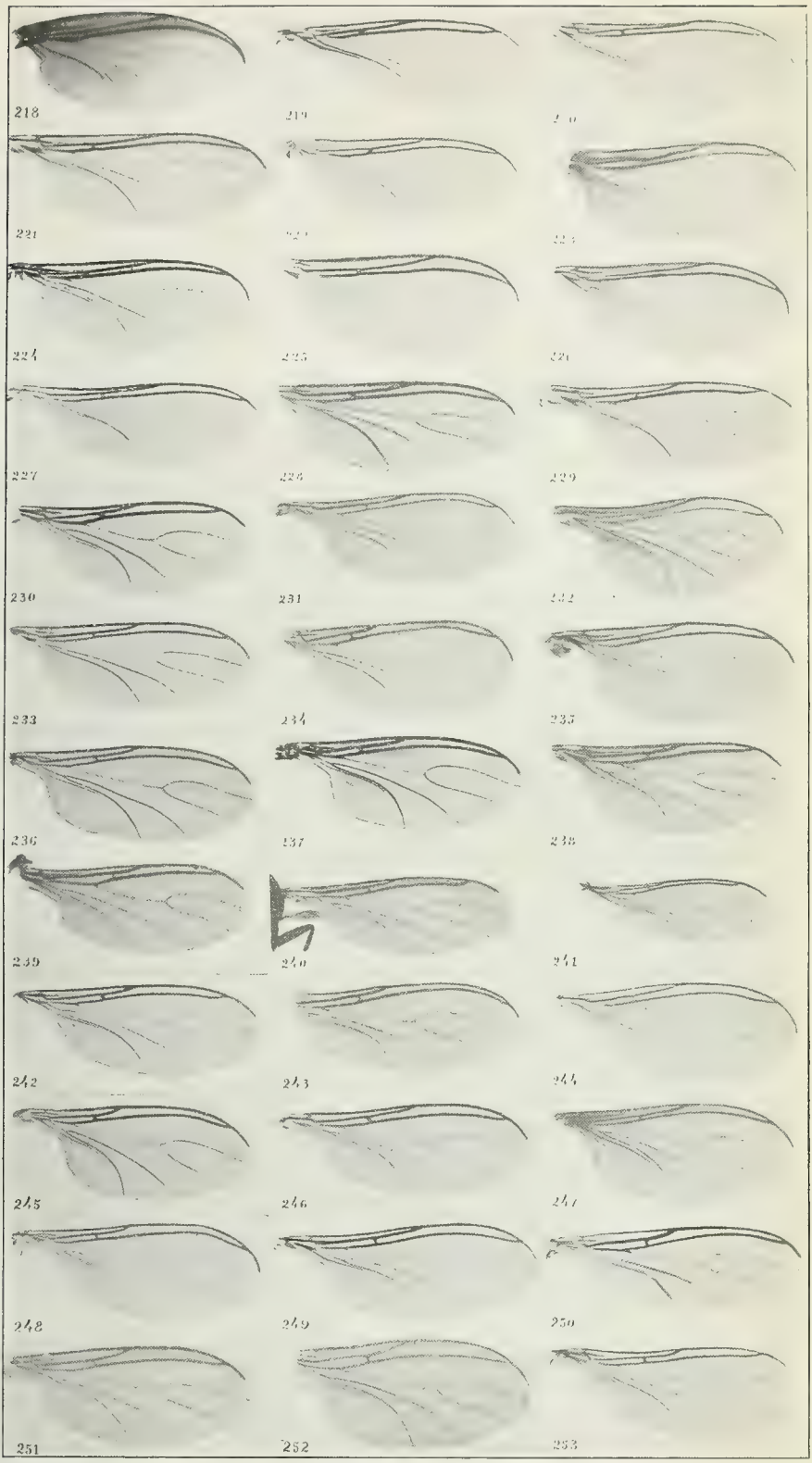

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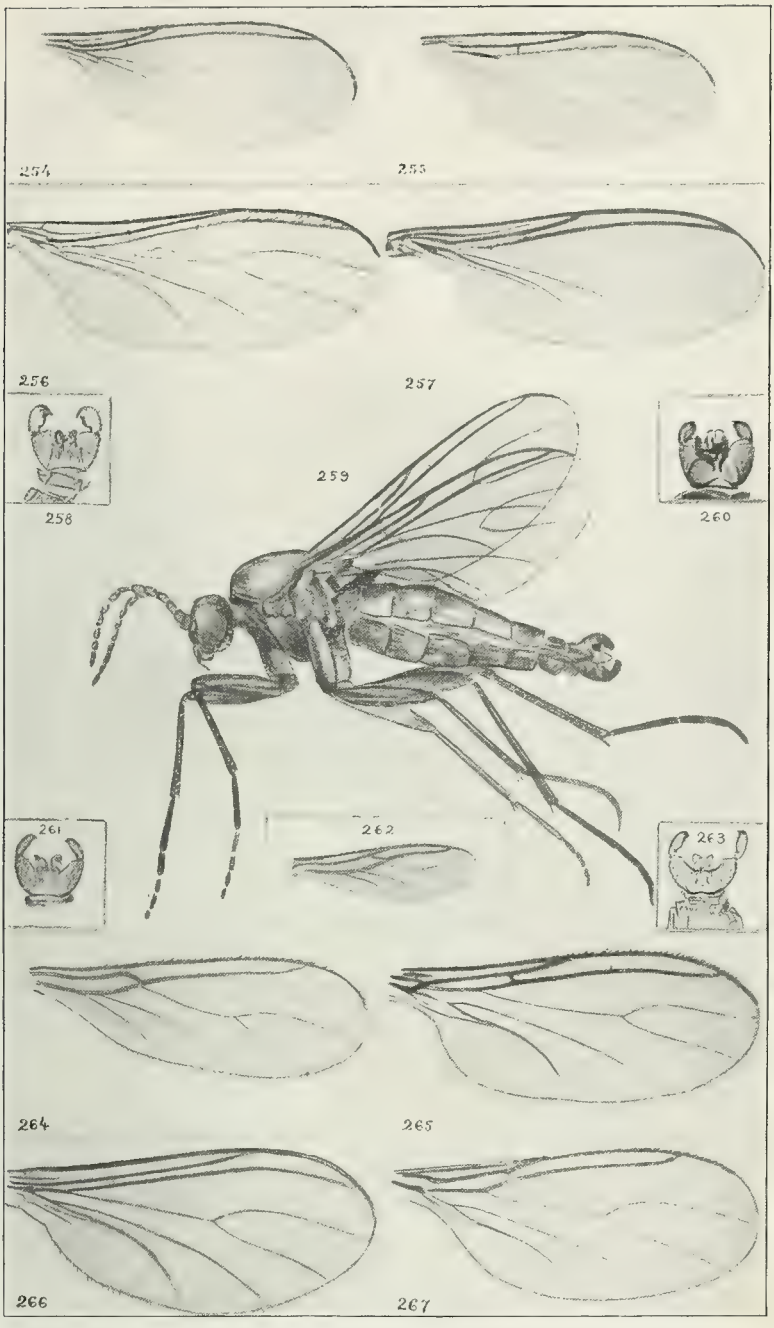

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